

Serviceanweisung
Service manual

Ident-Nr.: 47 113 00 PA SUPER TEAM (power amplifier)
47 159 00 PA OPEN AIR (power amplifier)
41 926 00 RF + CA (Radio + Cassette)
27 739 00 CD (CD player)

SUPER TEAM 1000

Open Air 1000



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Bestellhinweise

Hints for spare parts order

Bitte bei Ersatzteilbestellung die genaue Bezeichnung und **Ident-Nr. (siehe Typenschild)** des Gerätes sowie Bestell-Nummer und Positions-Nummer des Ersatzteils angeben.

For ordering of spare parts please state exact description and **ident no. of unit (see silver rating label on the backside of unit)** as well as part no. and position no. of required spare parts.

Benutzen Sie/Use:

Telex: 531516

oder



* 317298 #

oder

Telefax: 08245/51326

Betriebsspannungen

Operating voltage

| Spannung/Voltage (Volt) | Verbraucher | Consuming P.C.B. |
|-------------------------|-------------|-------------------------------|
| U 1 | +60 | Endstufe |
| U 2 | -60 | Endstufe |
| U 3 | +5 V | Standby |
| U 4 | +13,4 V | Tuner Lichtorgel, Klangregler |
| U 5 | -13,4 V | Lichtorgel, Klangregler |

Verdrahtungstabelle

| Stecker | von | nach | Bemerkungen |
|---------|--------------------------------|-----------------------------------|------------------------------------|
| B | HF-Platine | Bedienteil Tuner | Anschluß für Tastatur |
| C | HF-Platine | Klangregler-Platine | NF-Verbindung |
| D | HF-Platine | Ferritantenne | Anschluß für Ferritantenne |
| F | HF-Platine | Klangregler-Platine | Spannungsversorgung Tuner |
| G | HF-Platine | Klangregler-Platine | FB Tuner |
| H | Klangregler-Platine | Quellenumschaltung | Anschluß Tastatur |
| I | Klangregler-Platine | Plattenspieler | NF-Phono |
| J | Klangregler-Platine | Plattenspieler | +UB Phono |
| K | Klangregler-Platine | Cassette | +UB Cassette |
| L | Klangregler-Platine | Cassette | NF-Cassette |
| M | Klangregler-Platine | Netzschalter-Platine | Spannungsversorgung/Standby |
| N | Bedienteil Lichtorgel (Filter) | Netzversorgung Lichtorgel-Platine | Ansteuerung für Optokoppler |
| P | Klangregler-Platine | Lautstärkepoti | Motor |
| Q | Klangregler-Platine | Lautstärkepoti | NF Out |
| R | Klangregler-Platine | Lautstärkepoti | NF In |
| S | Netzschalter-Platine | | Netz Eingang |
| T | Netzschalter-Platine | CD-Spieler | Netz für CD |
| U | Netzschalter-Platine | Netzversorgung Lichtorgel | Netz für Lichtorgel |
| V | Netzschalter-Platine | Trafo | Netz für Trafo |
| W | Trafo | Netzschalter-Platine | Spannungsversorgung $\pm 13,4$ V |
| X | Trafo | Endstufe | Spannungsversorgung \pm Endstufe |
| Y | Netzschalter-Platine | Lautsprecherbuchsen-Platine | Kopfhörer Relaisansteuerung |
| Z | Netzschalter-Platine | Poweranzeige | Ansteuerung Bestriebsspannung + - |
| AC | Netzschalter-Platine | Bedienteil Lichtorgel | Spannungsvers. $\pm 13,4$ V |
| AD | Endstufe | Lautsprecherbuchsen-Platine | NF-Ausgang |
| AE | Endstufe | Lautsprecherbuchsen-Platine | NF-Eingang |
| AF | Lautsprecherbuchsen-Platine | Bedienteil Lichtorgel | NF-Lichtorgel |

Wiring table

| Pin | from | to | Notice |
|-----|---------------------------|---------------------------|-------------------------------------|
| B | RF P.C.B. | Control unit tuner | Connection for buttons |
| C | RF P.C.B. | Tone control P.C.B. | AF connection |
| D | RF P.C.B. | Wavemagnet | Connection for wavemagnet |
| F | RF P.C.B. | Tone control P.C.B. | Power supply tuner |
| G | RF P.C.B. | Tone control P.C.B. | Remote control tuner |
| H | Tone control P.C.B. | Mode selection | Connections for buttons |
| I | Tone control P.C.B. | Phono | AF phono |
| J | Tone control P.C.B. | Phono | Power supply phono |
| K | Tone control P.C.B. | Cassette | Power supply cassette |
| L | Tone control P.C.B. | Cassette | AF cassette |
| M | Tone control P.C.B. | Power switch P.C.B. | Power supply/Standby |
| N | Control unit flashlights | Power supply flashlights | Control for optocoupler |
| P | Tone control P.C.B. | Volume poti | Motor |
| Q | Tone control P.C.B. | Volume poti | AF out |
| R | Tone control P.C.B. | Volume poti | AF in |
| S | Power switch P.C.B. | | Power input |
| T | Power switch P.C.B. | CD player | Power supply CD player |
| U | Power switch P.C.B. | Power supply flashlights | Power supply flashlights |
| V | Power switch P.C.B. | Power transformer | Power supply transformer |
| W | Power transformer | Power switch P.C.B. | $\pm 13,4$ V |
| X | Power transformer | Output amplifier | Power supply output amplifier \pm |
| Y | Power switch P.C.B. | Speaker connection P.C.B. | Headphone relays control |
| Z | Power switch P.C.B. | Power indication P.C.B. | Power supply \pm |
| AC | Power switch P.C.B. | Control unit flashlights | Power supply $\pm 13,4$ V |
| AD | Output amplifier | Speaker connection P.C.B. | AF output |
| AE | Output amplifier | Speaker connection P.C.B. | AF input |
| AF | Speaker connection P.C.B. | Control unit flashlights | AF flashlights |

Abgleichanweisung Tuner

a) FM-ZF-Abgleich

1. Wobbelgenerator an Antennenbuchse anschließen.
2. Sichtgerät über HF-Tastknopf an Pin 1 IC LA 1265 (ZF-IC) anschließen.
3. Prüfling auf 98 MHz einstellen.
4. Durchlaßkurve mit ZF-Filter (im Tuner) auf Symmetrie und Maximum abgleichen.

b) Quadraturabgleich

1. Mit Meßsender 98 MHz, 1 mV, 40 kHz Hub über Antenne einspeisen.
2. Mit L 201 NF-Maximum einstellen.
3. Mit L 202 Klirrfaktor Minimum einstellen.
4. Abgleich wiederholen, bis DC-Spannung über CR 211 (47 K) gleich 0 V ist.
5. Dabei NF-Ausgangsspannung (ST.C) ca. 450 mV.

c) Decoder-Abgleich

1. Pin 4 + 8 IC 301 über 10 kOhm miteinander verbinden.
2. Pin 10 IC 201 (ZF IC) über 100 nF mit Masse verbinden.
3. Frequenz-Zähler an Pin 4 (IC 301) anschließen.
4. Mit R 308 76 kHz \pm 1 kHz einstellen.
Meßaufbau rückgängig machen.

d) Stereo-Übersprechen

1. NF-Millivoltmeter an NF-Ausgang (Stecker C) anschließen.
2. Stereo-Multiplex-Signal über Antenne einspeisen.
3. Mit R 301 Übersprechen auf Minimum einstellen.

e) 19/38 kHz Filter

1. Multiplex-Signal mit 1 mV HF-Pegel unmoduliert einspeisen.
2. Mit Filter 301/302 max. Sperrtiefe einstellen.

Abstimmungsspannung MW

Meßvorbereitung: Multimeter an Kathode von D 601 und Masse anschließen.

1. MW-Bereichstaste drücken.
2. Gerät auf 513 kHz einstellen.
3. L 401 0,5 Volt einstellen.
4. Gerät auf 1620 kHz einstellen.
5. Mit C 408 8 Volt einstellen.
6. Abgleich nochmals wiederholen.

Abstimmung LW

Meßvorbereitung: siehe oben

1. LW-Bereichstaste drücken.
2. Gerät auf 137 kHz einstellen.
3. Mit L 402 0,6 Volt einstellen.
4. Gerät auf 290 kHz einstellen.
5. Mit C 405 7 Volt einstellen.
6. Abgleich nochmals wiederholen.

Alignment procedure tuner

a) FM-IF calibration

1. Connect sweep frequency generator to antennae jack.
2. Connect VDU above HF pushbutton to pin 1 IC LA 1265 (IF-IC).
3. Set equipment under test to 98 MHz.
4. Calibrate transmission characteristic to "Symmetry" and "Maximum" with IF filter (in tuner).

b) Quadrature calibration

1. Supply 98 MHz, 1 mV, 40 kHz deviation with signal generator via antennae.
2. Set AF maximum with L 201.
3. Set harmonic distortion factor minimum with L 202.
4. Repeat calibration until DC voltage via CR 211 (47 K) is equal to 0 V.
5. AF output voltage (plug C) is approx. 450 mV.

c) Decoder calibration

1. Connect pins 4 + 8 IC 301 with 10 kOhm.
2. Connect pin 10 IC 201 (IF-IC) to earth with 100 nF.
3. Connect frequency counter to pin 4 (IC 301).
4. Set 76 kHz \pm 1 kHz with R 308.
Reverse measuring set-up.

d) Stereo crosstalk

1. Connect AF millivolt meter to AF output (plug C).
2. Supply stereo multiplex signal via antennae.
3. Set crosstalk to minimum with R 301.

e) 19/38 kHz filter

1. Supply unmodulated multiplex signal with 1 mV HF level.
2. Set max. rejection range with filter 301/302.

MW tuning voltage

Measuring preparation: Connect multimeter to cathode of D 601 and to earth.

1. Press MW band button.
2. Set unit to 513 kHz.
3. Set 0.5 volts with L 401.
4. Set unit to 1620 kHz.
5. Set 8 volts with C 408.
6. Repeat calibration.

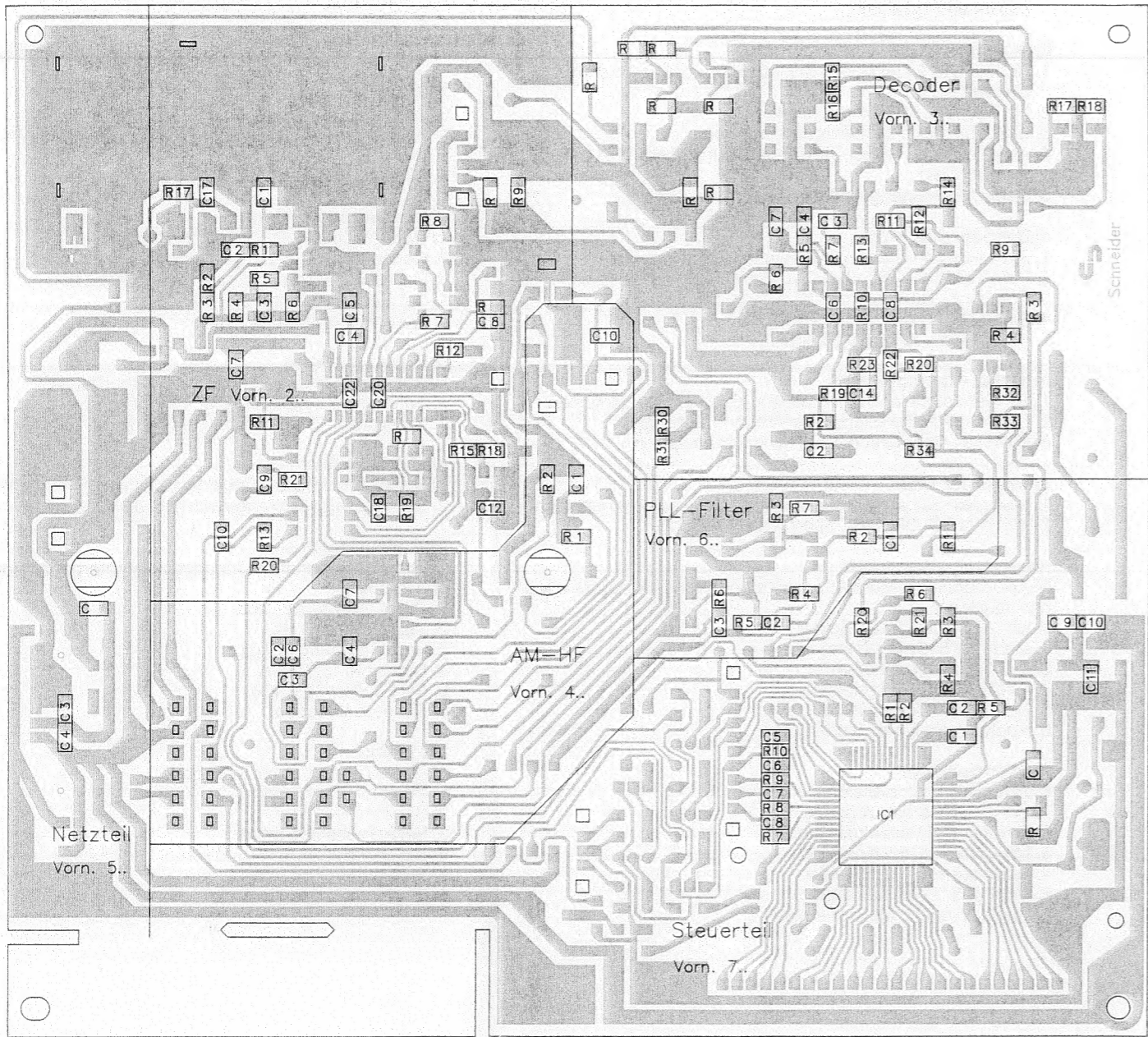
LW tuning

Measuring preparation: See above.

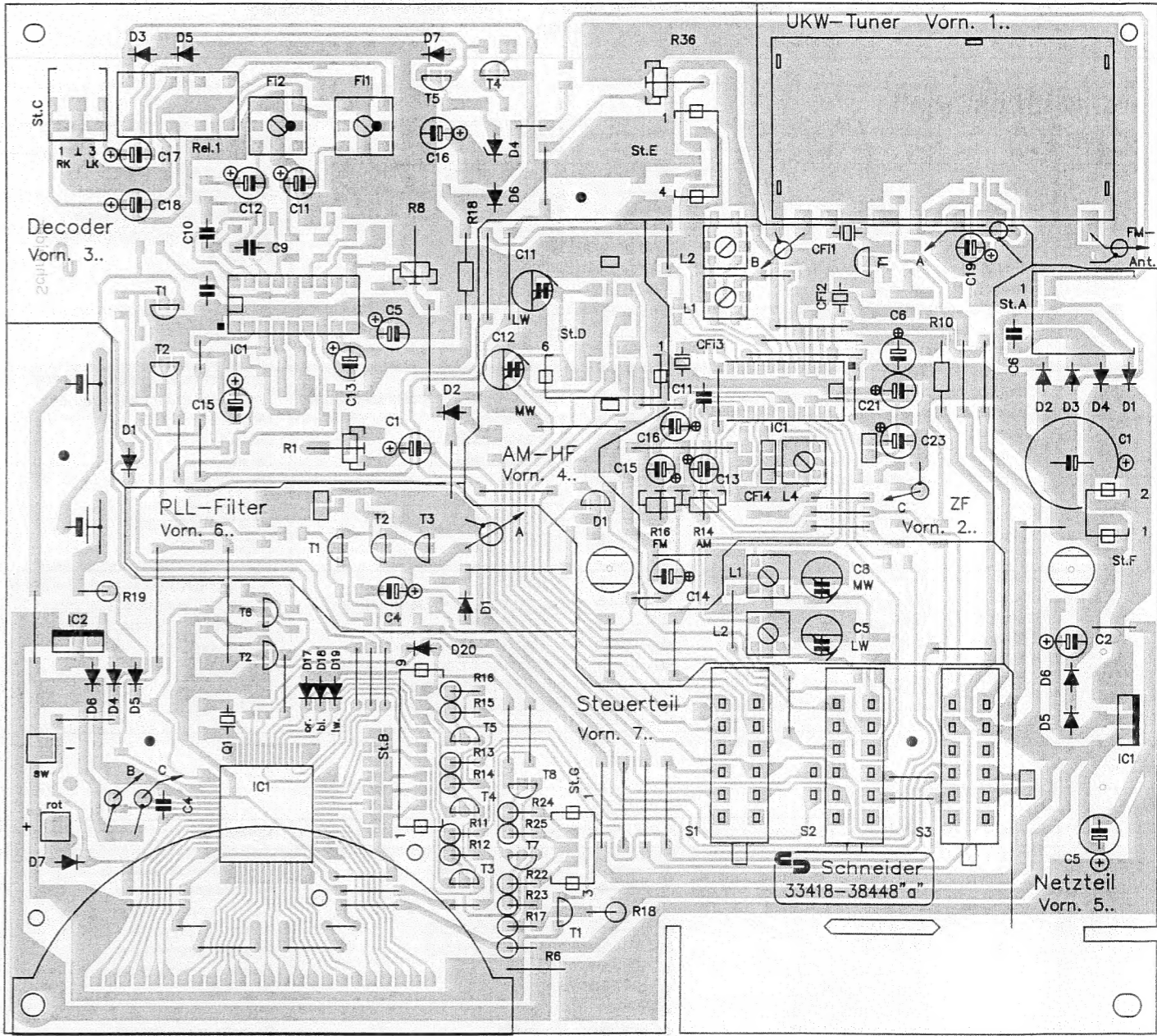
1. Press LW band button.
2. Set unit to 137 kHz.
3. Set 0.6 volts with L 402.
4. Set unit to 290 kHz.
5. Set 7 volts with C 405.
6. Repeat calibration.

Platinendarstellung HF
P.C.B. diagram RF

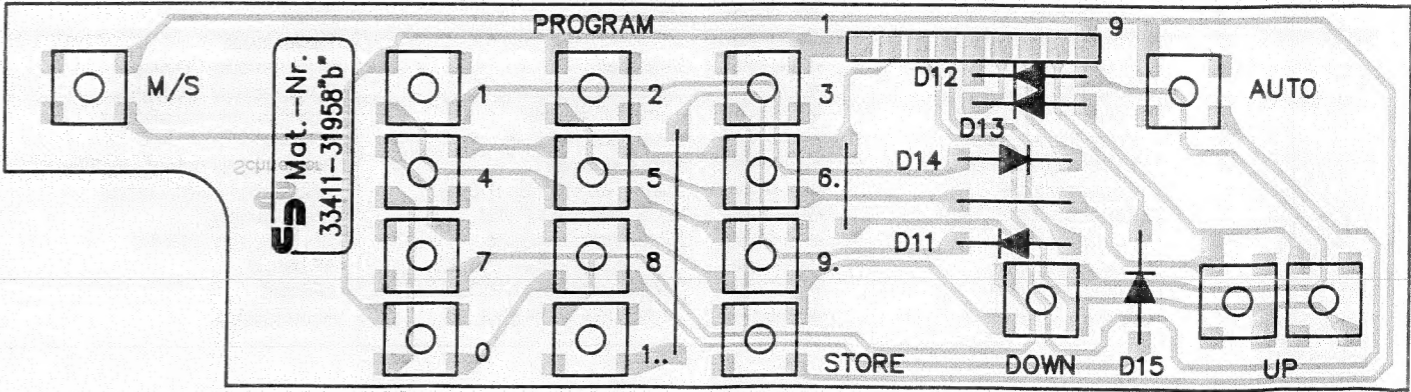
Leiterbahnseite
Bottom view



Bestückungsseite
Top view



Bedienteil Tuner
Control unit tuner

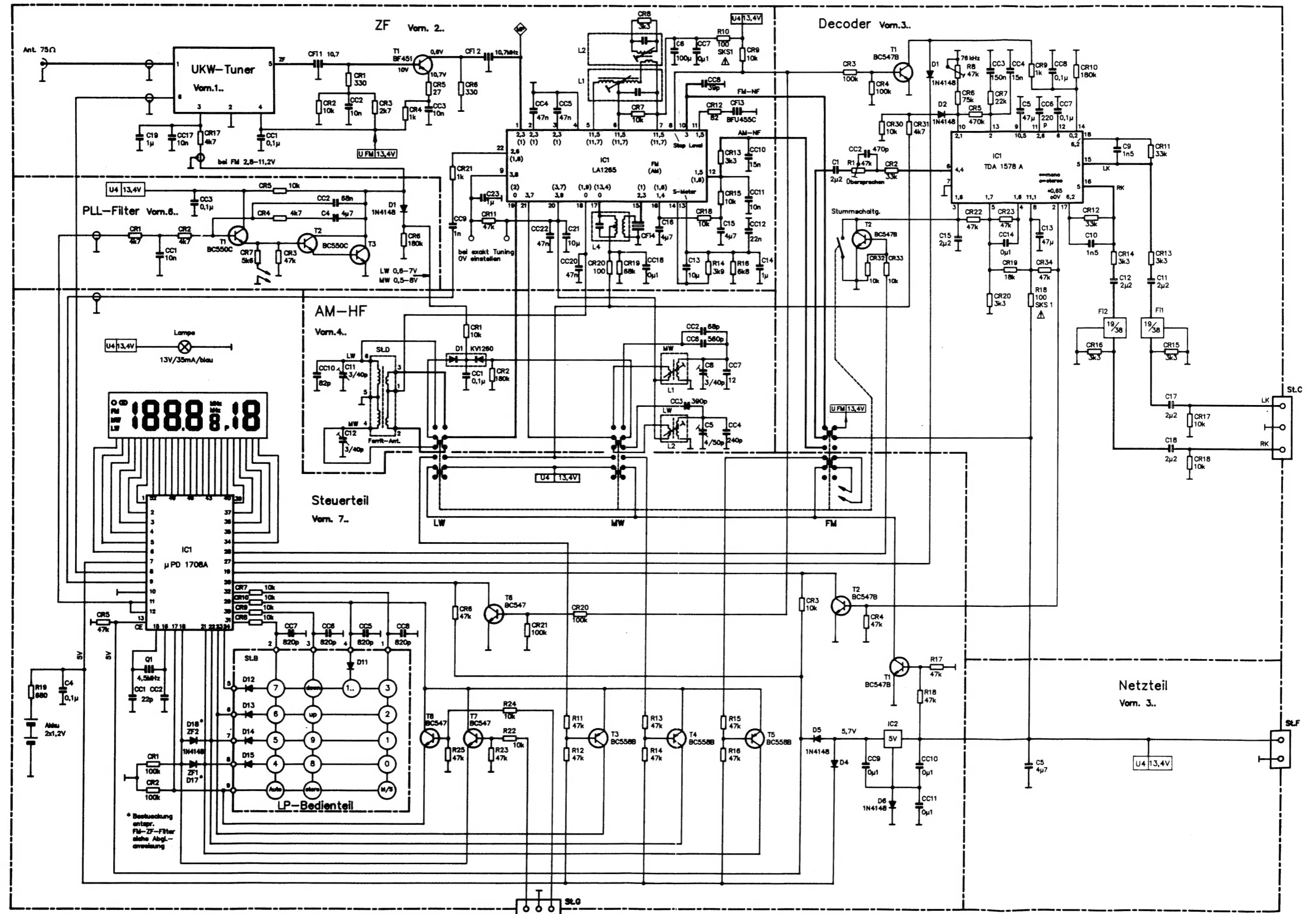


Schaltbild HF Circuit diagram RF

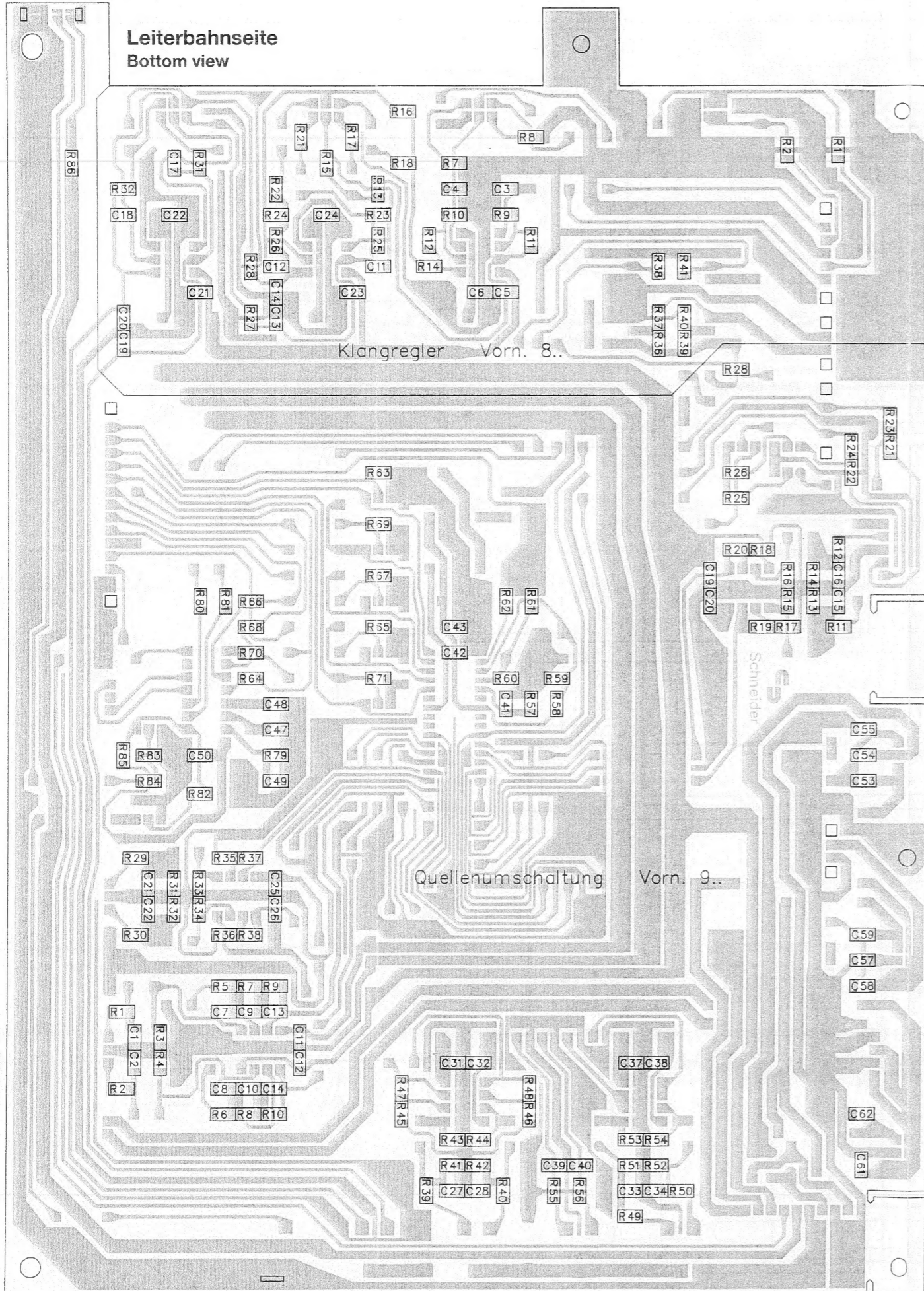
Gerät in Stellung "FM" ein !

⚠ = Sicherheitsbauteile
sind unbedingt durch
Originalteile zu ersetzen

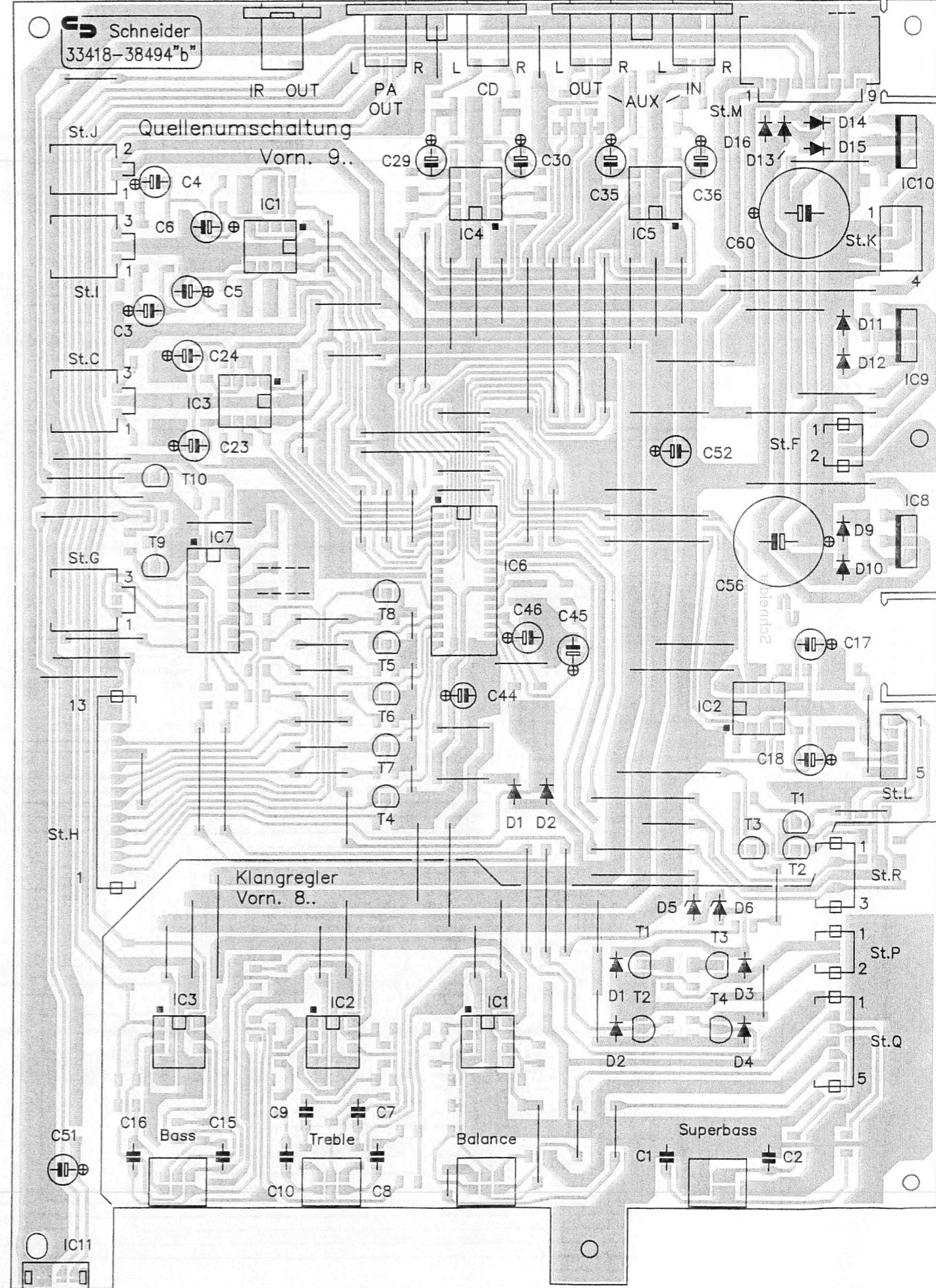
⚠ = Please use
original spare
parts only



Platinendarstellung Klangregler

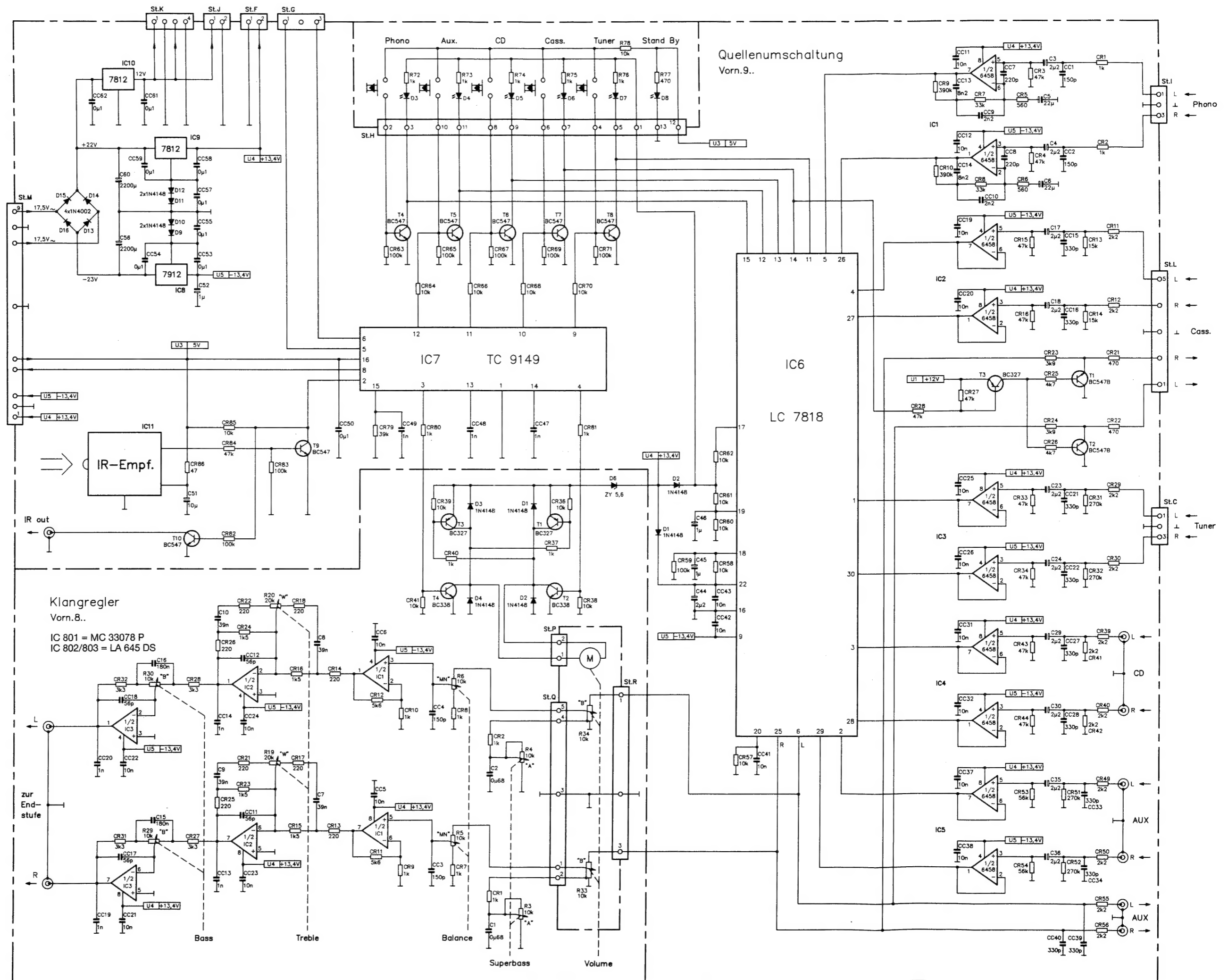
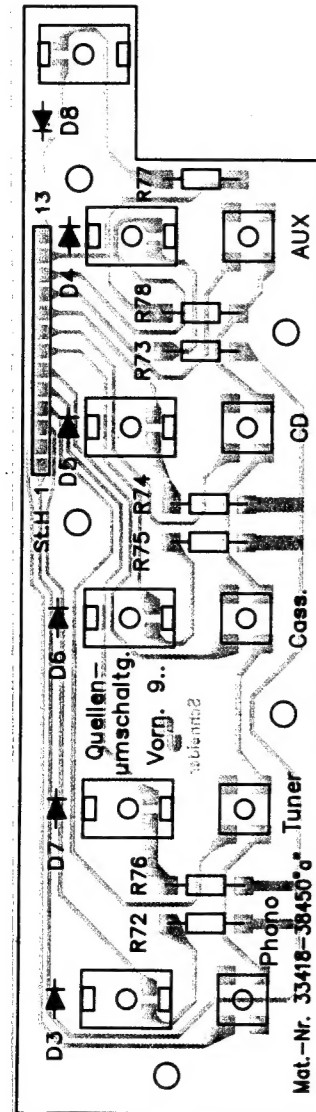


Bestückungsseite
Top view



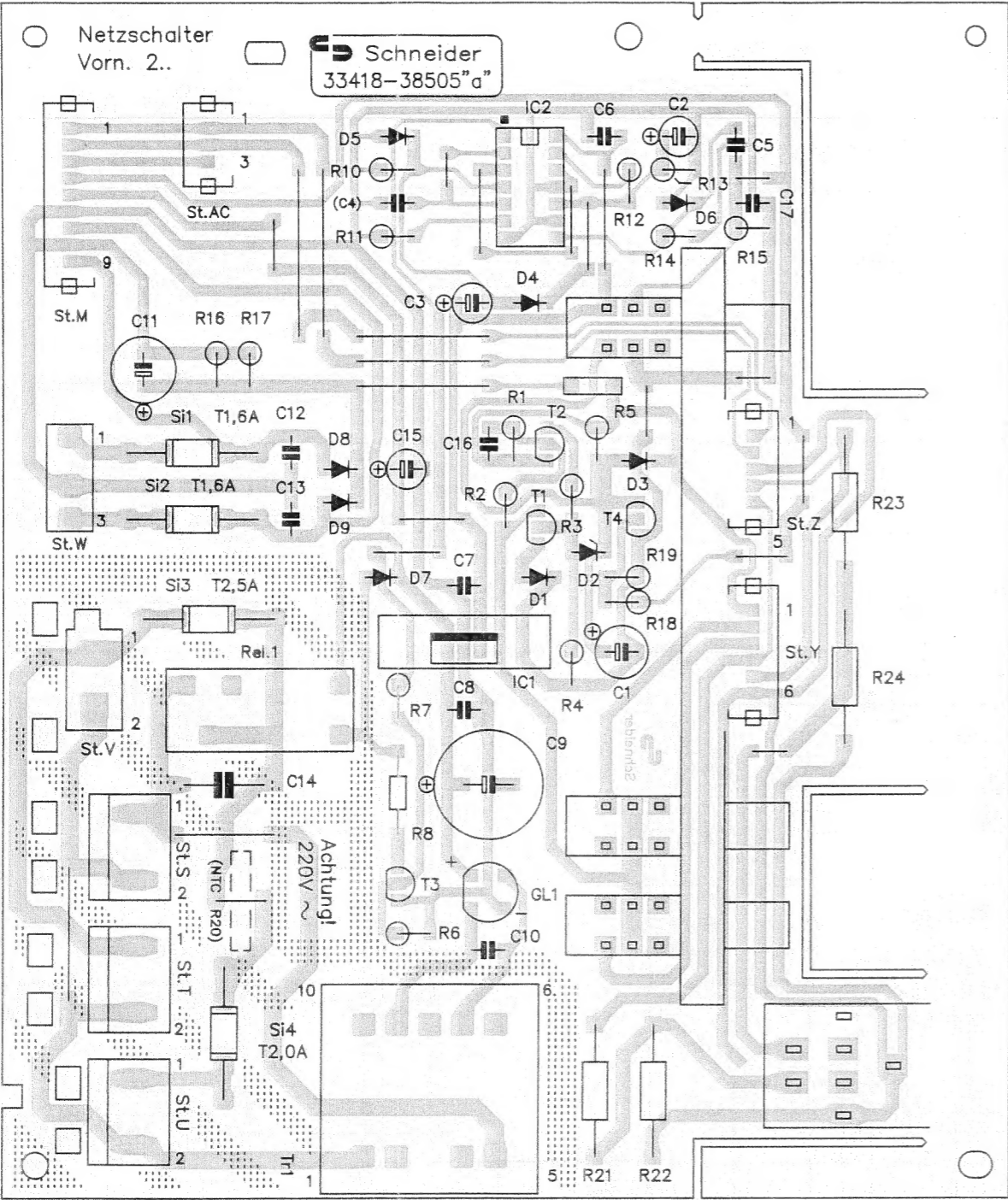
Schaltbild Quellenumschaltung, Klangregler
Circuit diagram mode selection, tone control

Platindenarstellung Quellenumschaltung
P.C.B. diagram mode selection

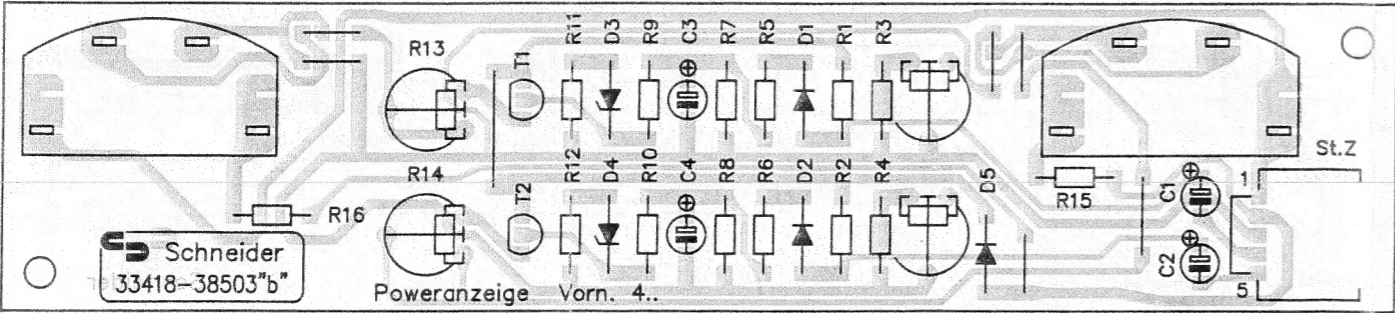


Platinendarstellungen NF
P.C.B. diagrams AF

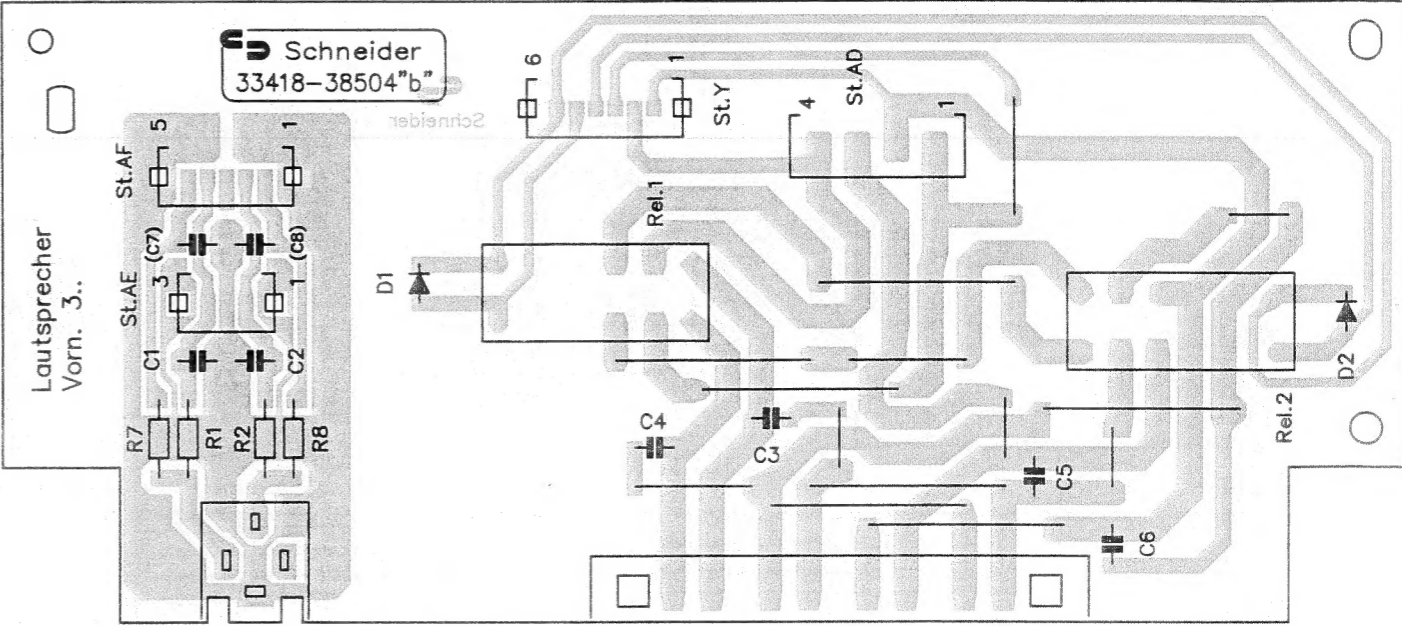
Netzschalterplatine
Power switch P.C.B.



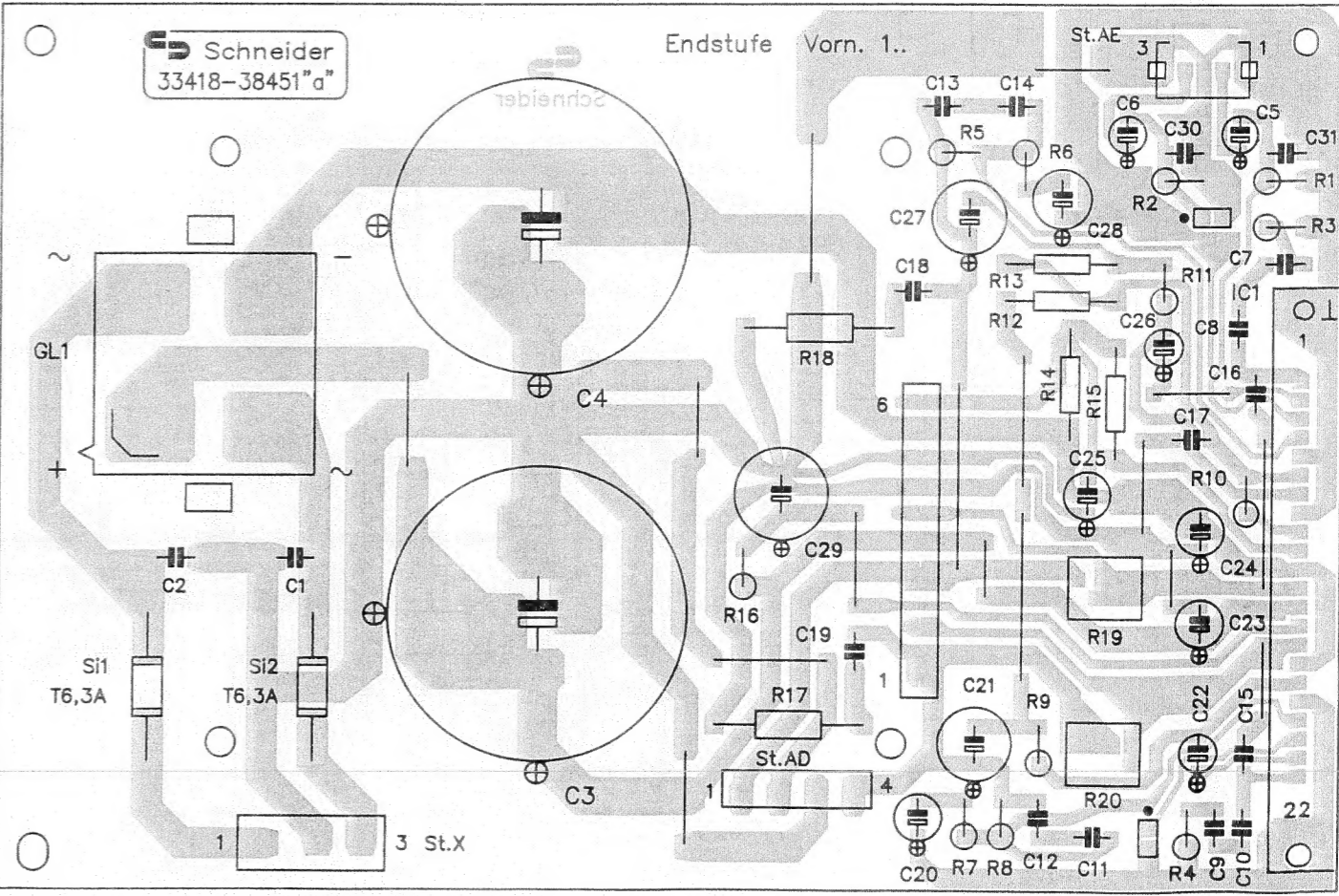
Power-Anzeige
Power indication



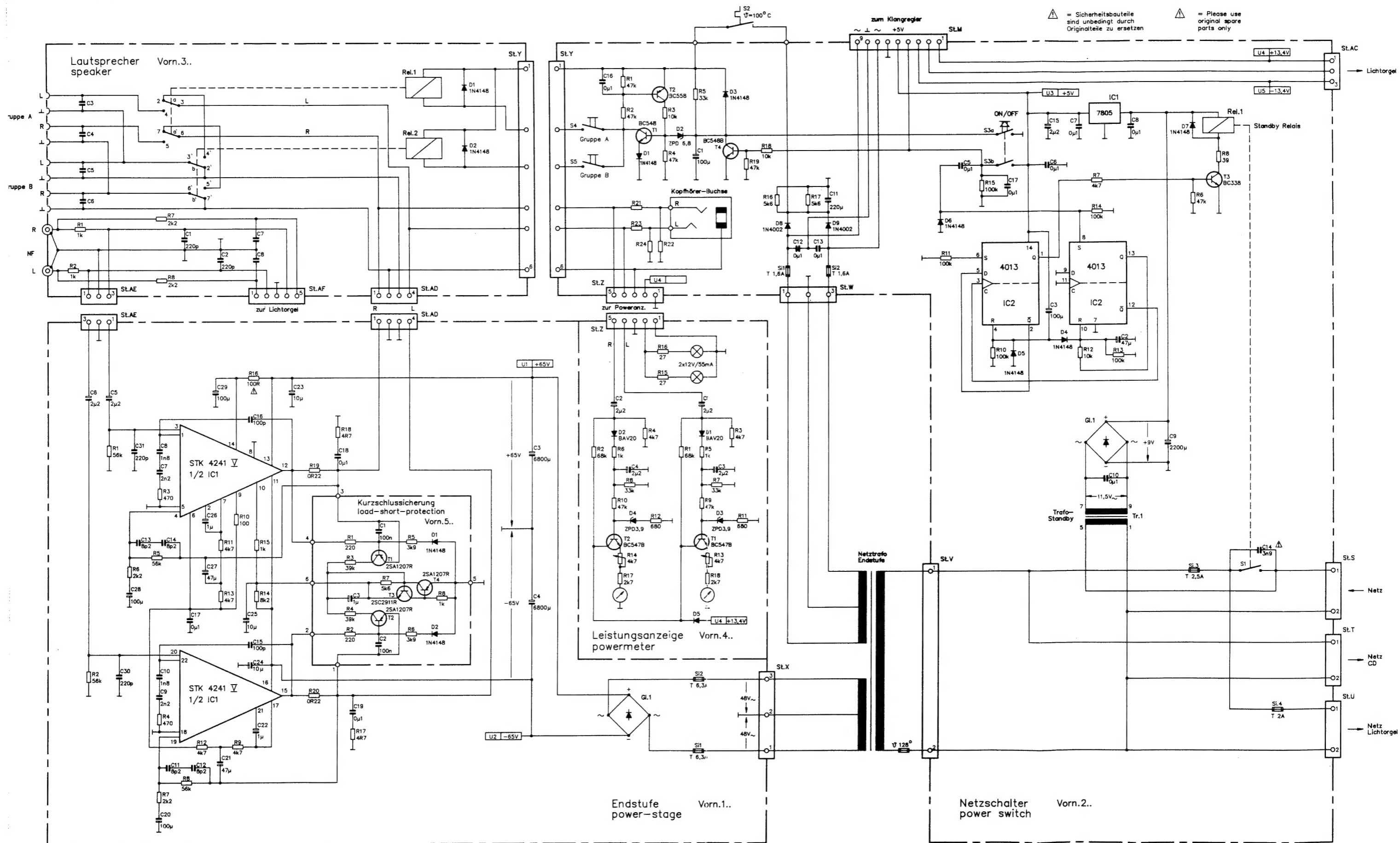
Lautsprecherbuchsenplatine
Speaker connection P.C.B.



Endstufe
Output amplifier



Schaltbild NF
Circuit diagram AF

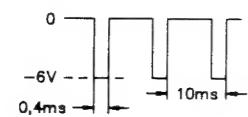


Schaltbild Lichtorgel Circuit diagram flashlights

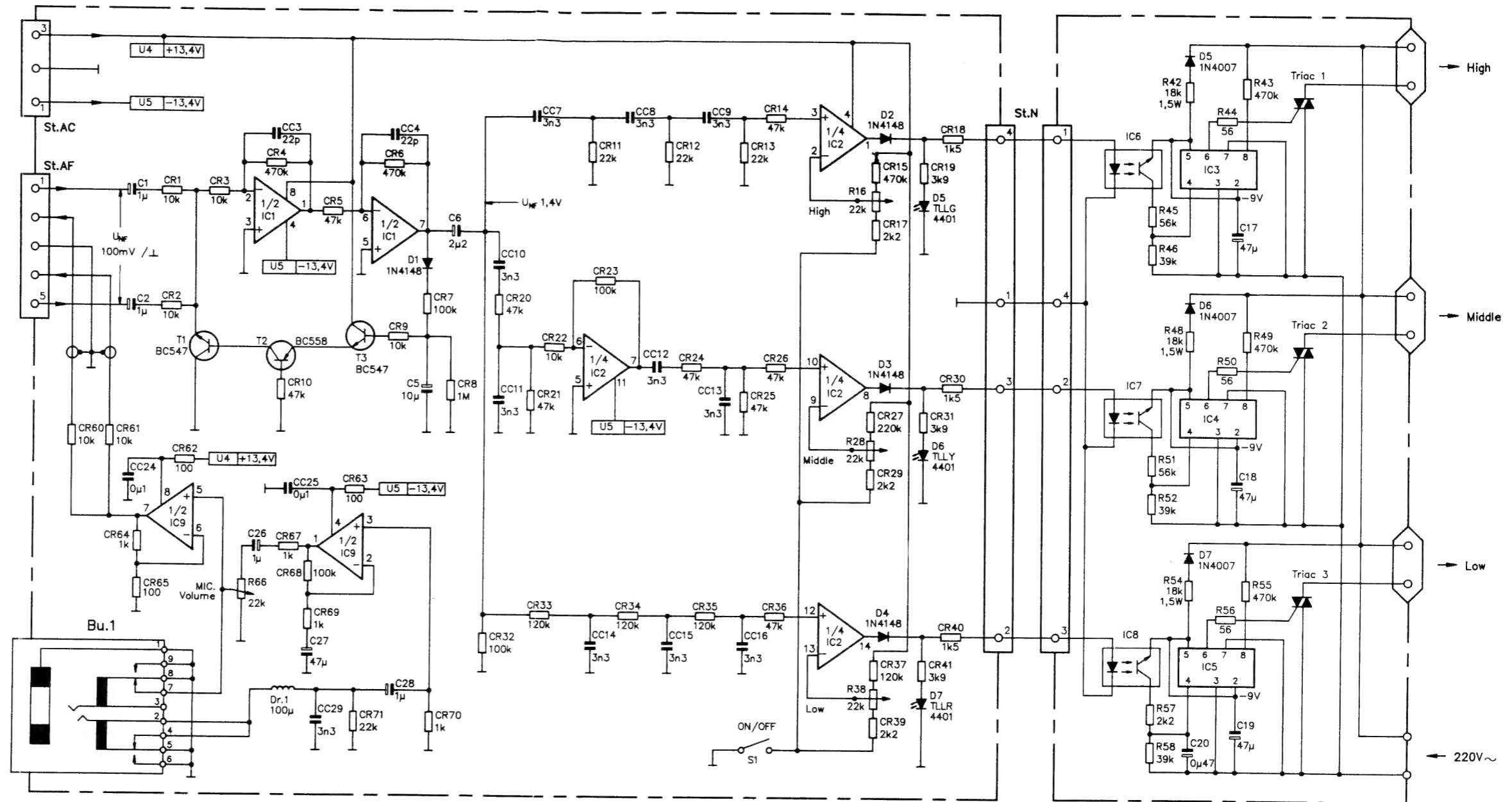
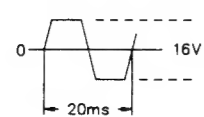
(nur für OPEN AIR)
(only OPEN AIR)

IC 1, IC 9= 6458 DS
IC 2= MC 33079
IC 3, IC 4, IC 5= U 217 B
IC 6, IC 7, IC 8= CQY 80 NG
Triac 1, 2, 3= TIC 206 M

Lampe aktiv Pin 6 IC 3,4,5

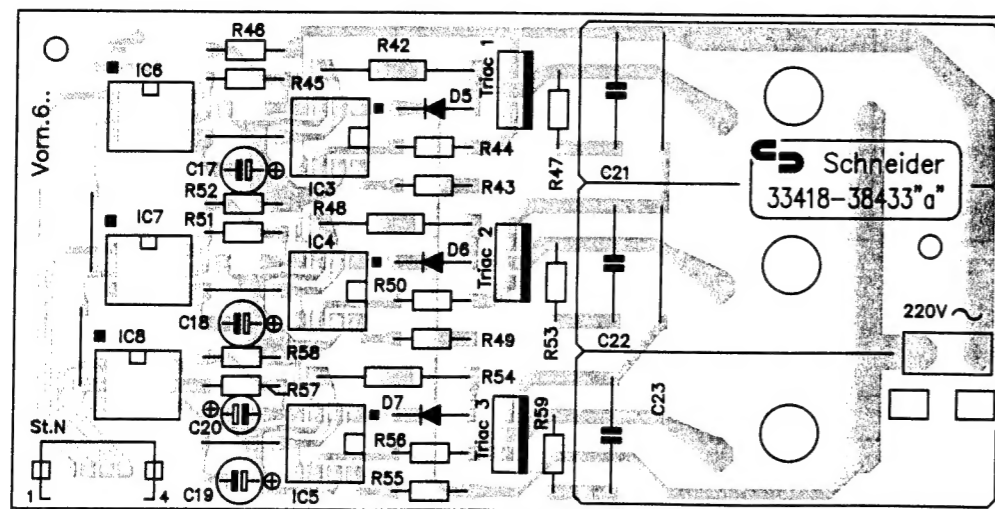


Pin 8 IC 3,4,5

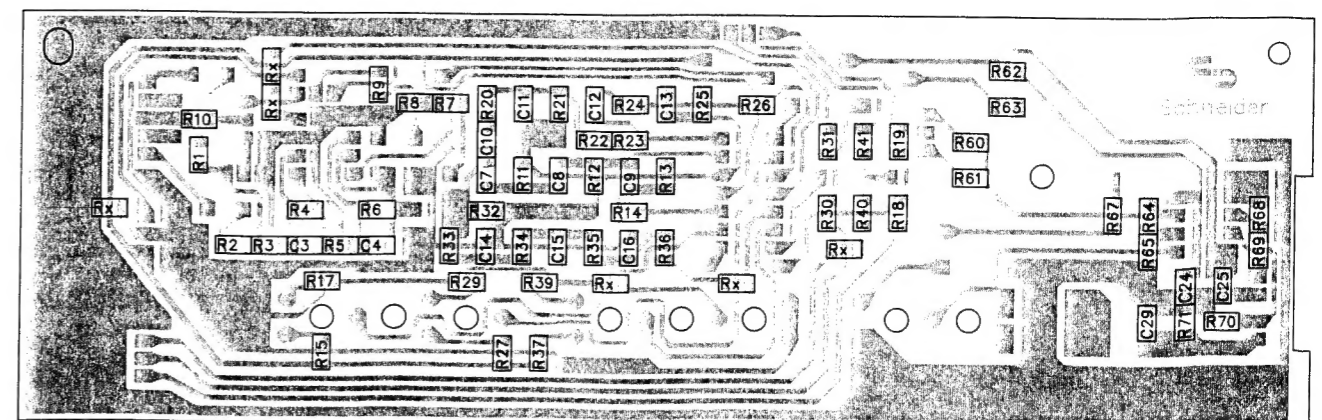
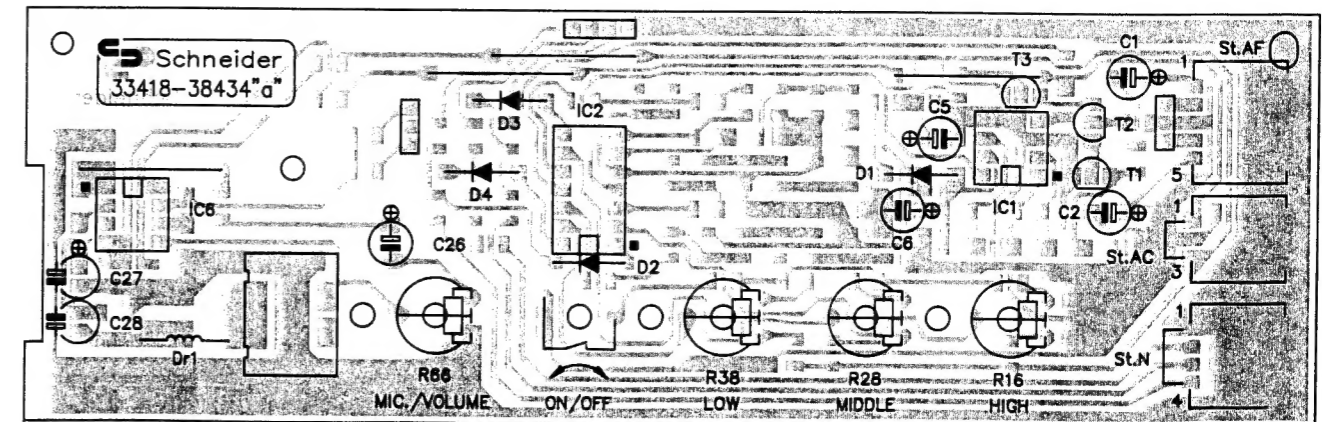


Platinendarstellung Lichtorgel P.C.B. diagram flashlights

Netzversorgung Power supply



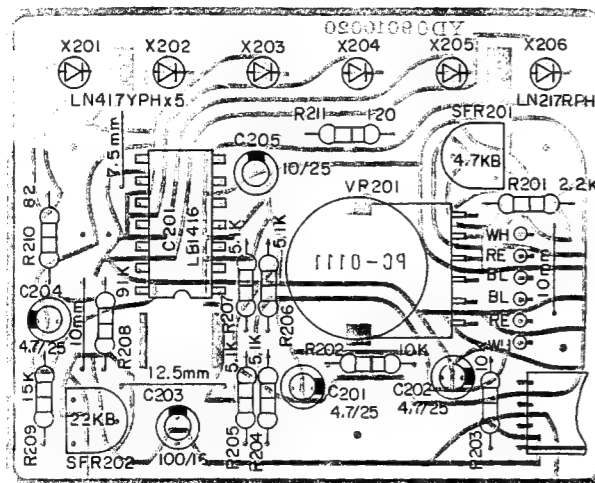
Bedienteil (Filter) Control unit (filter)



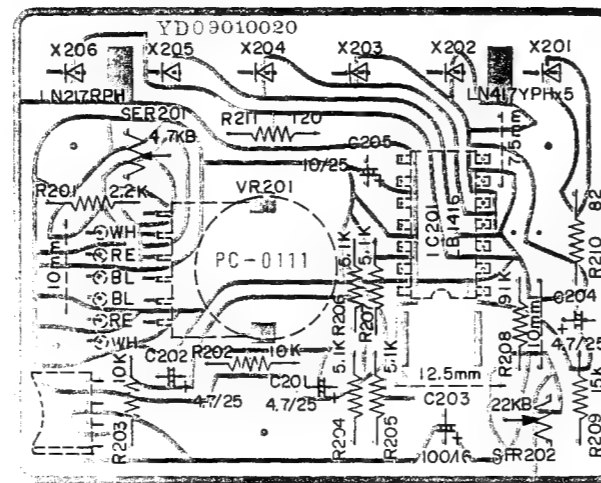
Platinendarstellungen Cassettenrecorder

Aussteuerungsplatine
Record level P.C.B.

Bestückungsseite/Top view

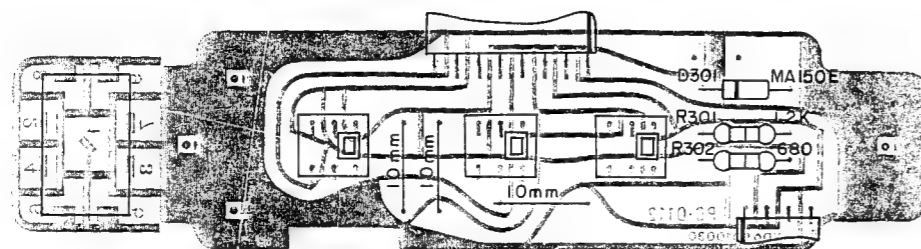


Leiterbahnseite/Bottom view

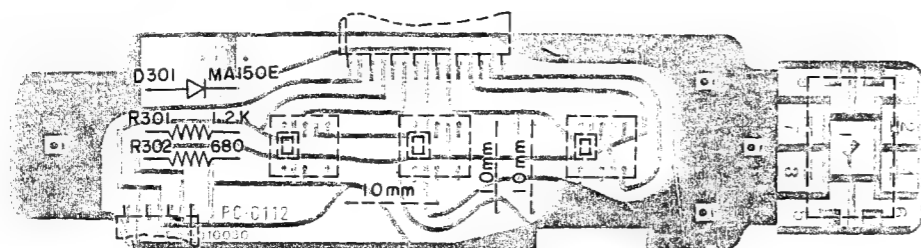


Schalterplatine Switch P.C.B.

Bestückungsseite/Top view

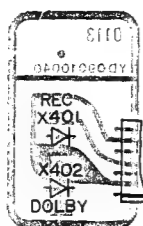


Leiterbahnseite/Bottom view

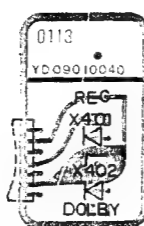


LED-Platine
LED P.C.B.

Bestückungsseite/Top view



Leiterbahnseite/Bottom view



Abgleichanweisung Cassettenrecorder

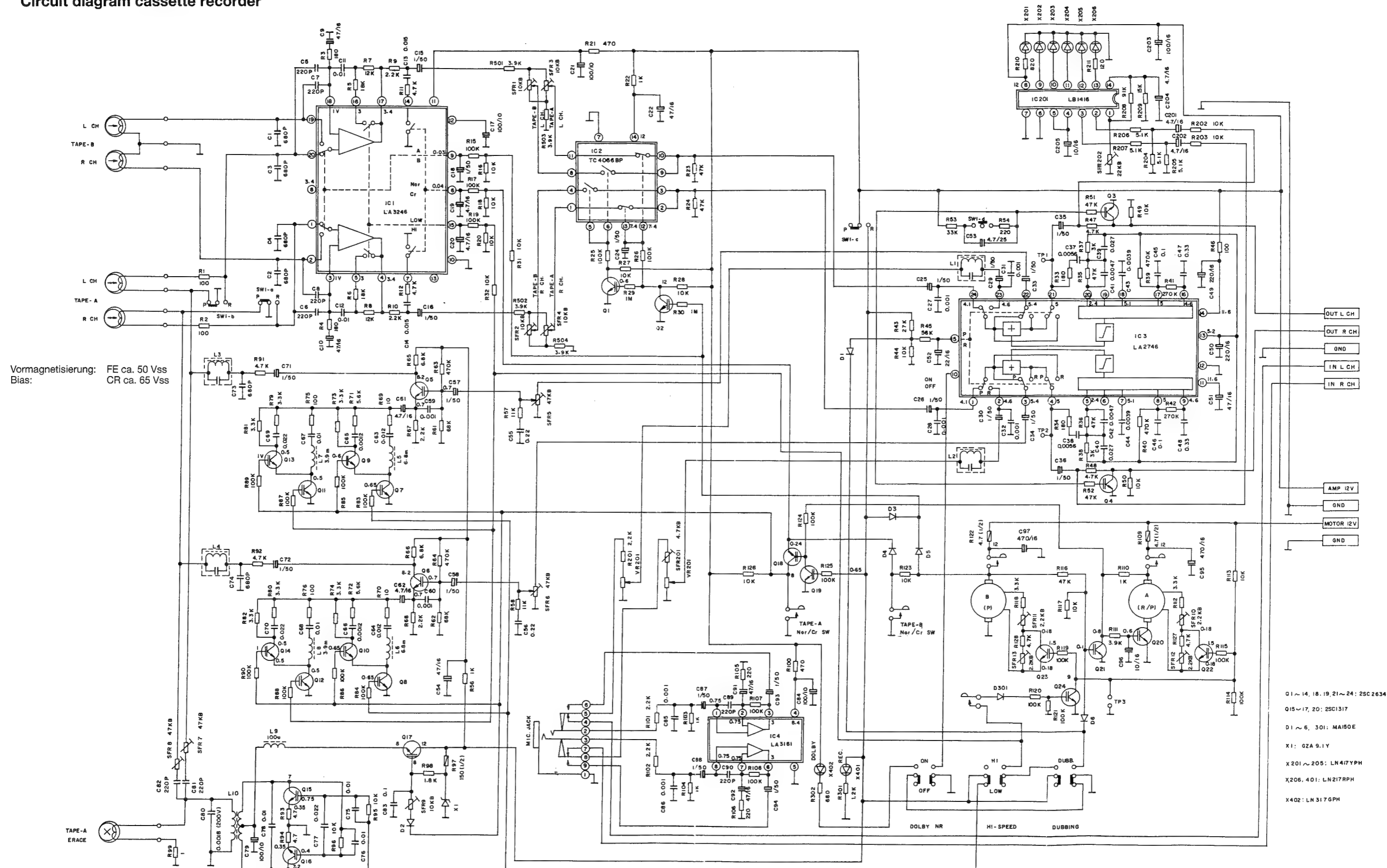
| STEP | INPUT SOURCE | | TEST TAPE | OUTPUT INDICATOR | ADJUSTOR | ADJUSTOR | NOTE |
|-------------------------|--------------|-------------|------------|------------------|--------------------------------|----------|----------|
| | GENERTOR | | | CONNECTION | | | |
| | CONNECTION | FREQUENCY | CONNECTION | | | | |
| HEAD AZIMUTH | | | | | | | |
| 1. | | | MIT-114N | V.T.V.M. | AZIMUTH SCREW | MAX | TAPE A & |
| | | | | LINE IUTPUT | | | TAPE B |
| TAPE SPEED | | | | | | | |
| 2. | PLAY BACK | | MIT-111N | V.T.V.M. | SFR-10 | 3000Hz | TAPE A |
| | | 3000Hz | | LINE OUTPUT | SFR-11 | | TAPE B |
| | PLAY BACK | | MIT-111N | V.T.V.M. | SFR-12 | 4800Hz | TAPE A |
| | | 3000Hz | | LINE OUTPUT | SFR-13 | | TAPE B |
| DOLBY LEVEL | | | | | | | |
| 3. | PLAY BACK | | MIT-150 | V.T.V.M. | SFR- 3 ₄ | 580mV | TAPE A |
| | | 400Hz | | DOLBY IC 4.21PIN | SFR- ¹ ₂ | | TAPE B |
| TAPE OSC COIL FREQUENCY | | | | | | | |
| 4. | RECORD | | | | | | |
| | | | | E HEAD | L-10 | 125KHz | |
| TRAP COIL | | | | | | | |
| 5. | RECORD | | | V.T.V.M. | L-3 | MIN | |
| | | | | R-91/R-92 | L-4 | | |
| HEAD BIAS LEVEL | | | | | | | |
| 6. | RECORD | | | V.T.V.M. | SFR-9 | 55mV | NOR |
| | | | | R/P HEAD | SFR- 7 ₈ | 76mV | CRO2 |
| DOLBY TRAP COIL | | | | | | | |
| 7. | RECORD | | | V.T.V.M. | L-1 | MIN | |
| | | | | DOLBY IC-4.21PIN | L-2 | | |
| LEVEL METER | | | | | | | |
| 8. | RECCRD | | | V.T.V.M. | | 4RCS | |
| | LINE IN | 1K 400mV | | DOLBY IC4.21 | SFR-202 | LAMP ON | |
| RECORDING SESITIVITY | | | | | | | |
| 9. | RECORD | | | V.T.V.M. | SFR-5 | 5.0mV | NOR |
| | LINE IN | 1K 400mV | | R/P HEAD | SFR-6 | 8.2mV | CRO2 |

Bestückungsseite/Top view



Schaltbild Cassettenrecorder

Circuit diagram cassette recorder

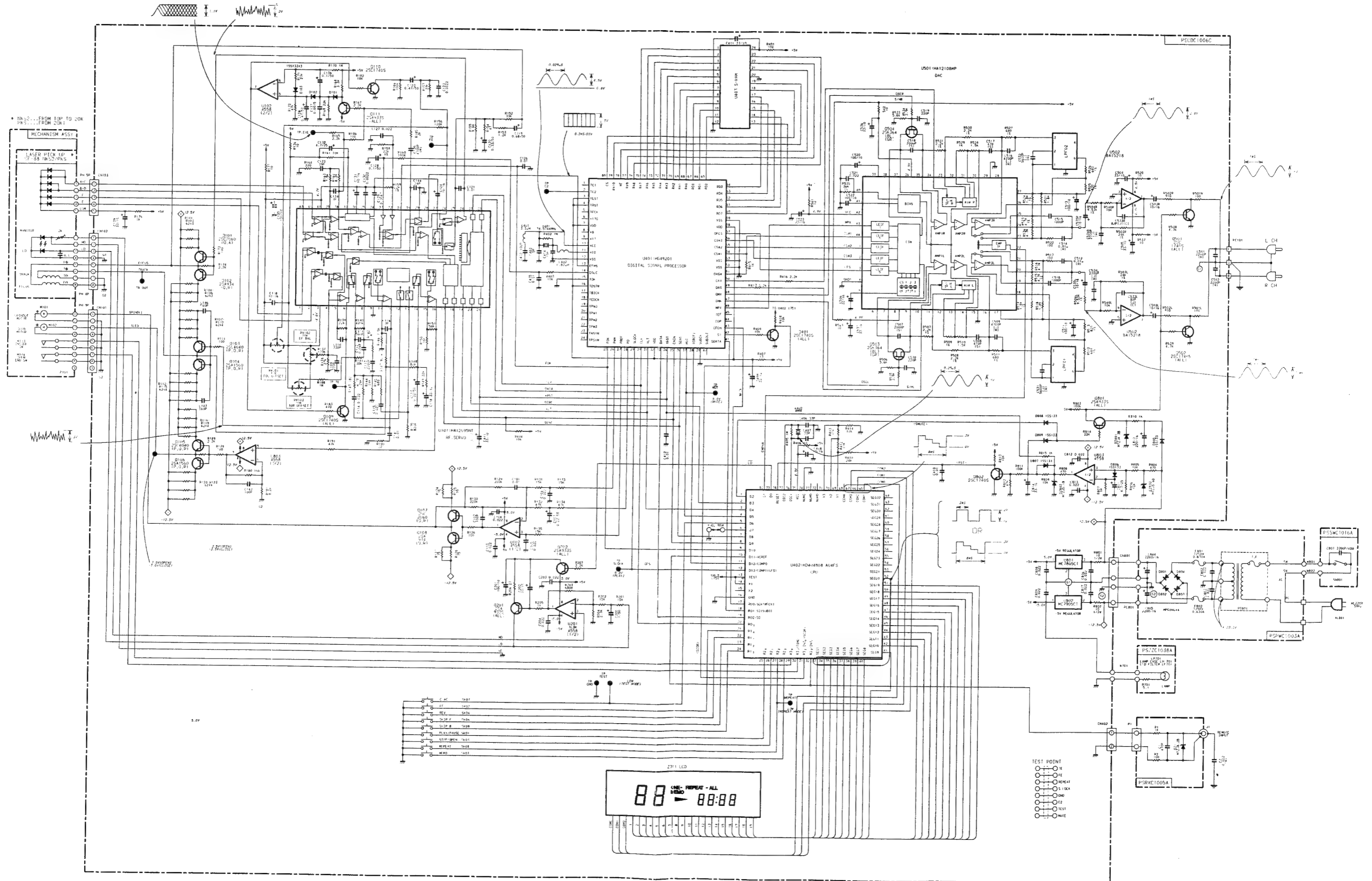


| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 | Q21 | Q22 | Q23 | Q24 |
|---|-----|----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| B | 0.6 | 0 | 0.7 | 0.7 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| C | 0 | 12 | 8.2 | 8.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 0 | 0 | 0.7 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.35 | 0.35 | 0.24 | 0 | 0 | 0 | 0.18 | 0.18 | 0 |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|-------|------|------|-----|-----|-----|------|------|------|------|----|------|----|-----|------|----|-----|----|-----|----|-----|----|-----|-----|-----|
| IC1 | 0 | 0 | 1 | 3.4 | 3 | 0.04 | 0 | 3.4 | 0.03 | 0 | 11.5 | 0 | 0 | 0 | 3 | 3.4 | 1 | 0 | 0 | | | | | |
| IC2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| IC3 | 4.1 | 4.6 | 5.4 | 5 | 2.4 | 0 | 5.1 | 5 | 4.6 | 0 | 11.6 | 0 | 5.2 | 11.6 | 0 | 4.6 | 5 | 5.1 | 0 | 2.4 | 5 | 5.4 | 4.6 | 4.1 |
| IC4 | 0.75 | 0.75 | 3 | 8.4 | 0 | 3 | 0.75 | 0.75 | 4.6 | 0 | | | | | | | | | | | | | | |
| IC201 | | | | | | | | | | | | | | | | | | | | | | | | |

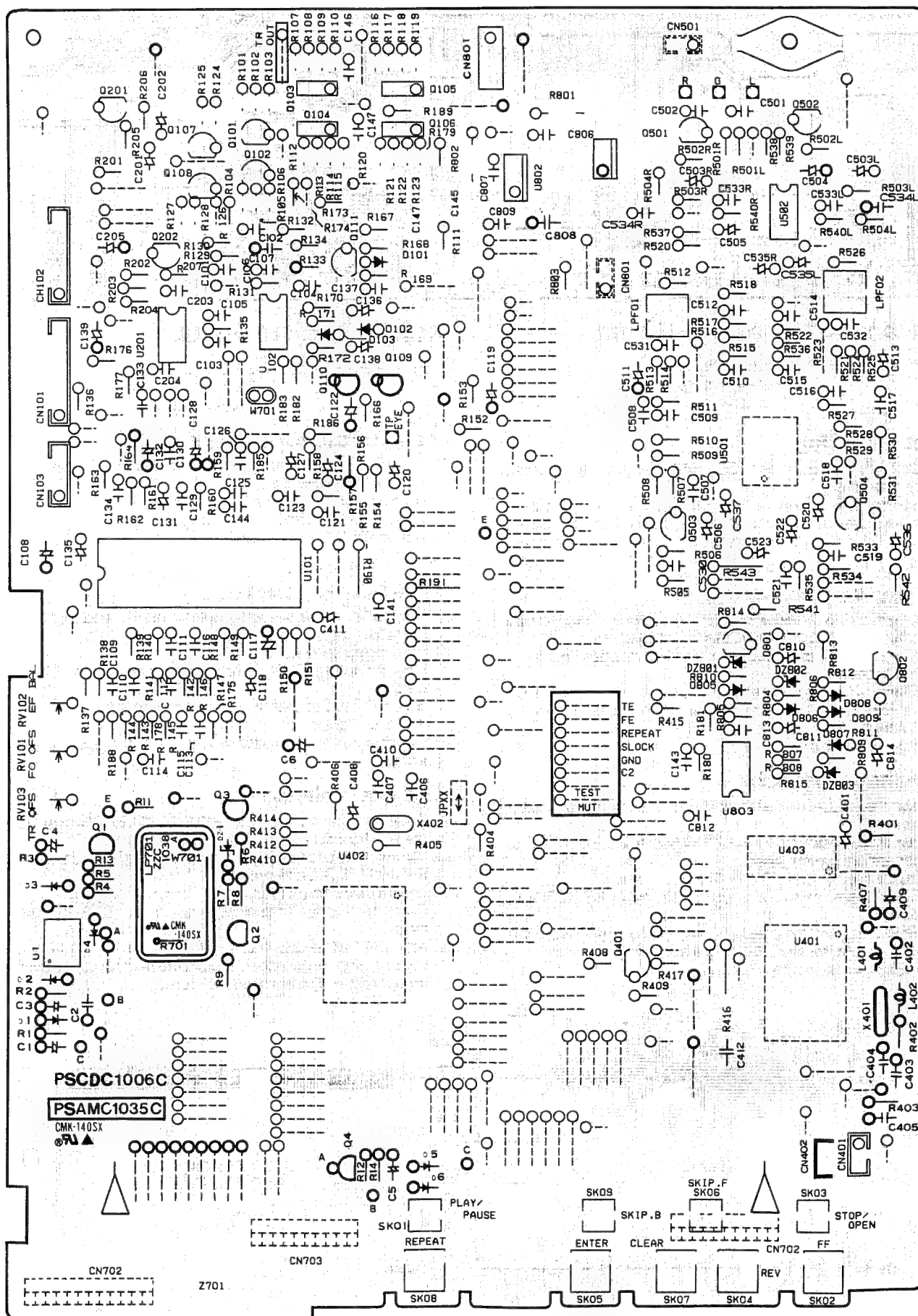
Schaltbild CD-Player

Circuit diagram CD player

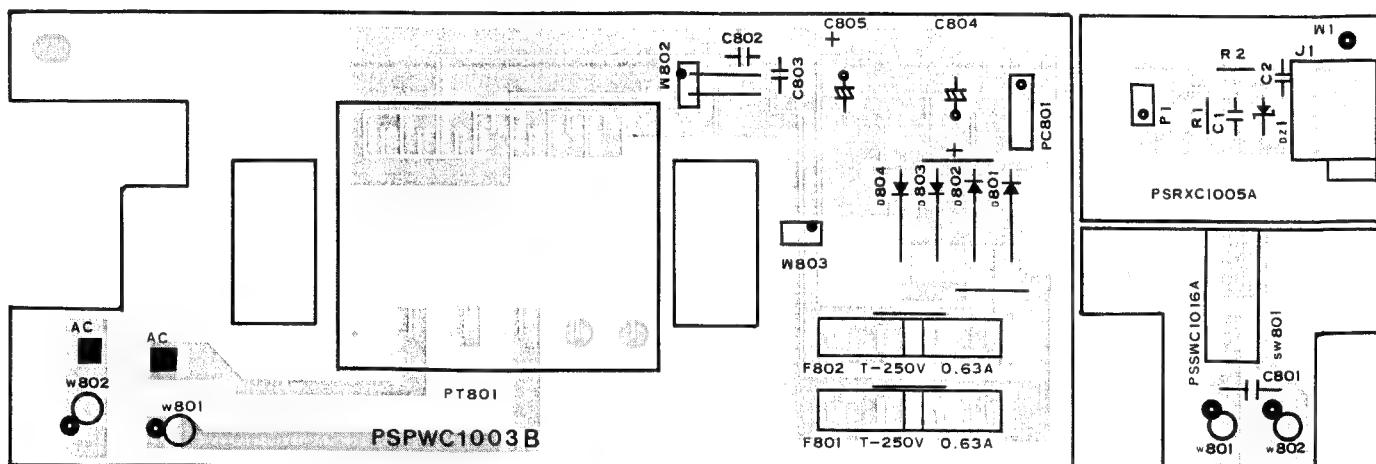


Grundplatine CD-Player

Main P.C.B. CD player



Netzteil/IR-Eingang CD-Player Power supply/IR input CD player



Abgleichanweisung CD-Player

Benötigte Meßgeräte

- Frequenzzähler
- Test CD Philips 3
- Oszilloskop

Spurabweichung

Dieser Abgleich kann auch ohne CD-Platte durchgeführt werden.

1. Gerät einschalten.
2. Oszilloskop an Testpunkt »TP. TR OUT« und Masse anschließen und auf Gleichspannung (DC) am Oszilloskop umschalten.
3. Mit RV 103 gleichspannungsmäßig auf 0 Volt ± 20 mV abgleichen.

Focus-Servo-Abgleich

1. Oszilloskop an Testpunkt »FE« und Masse anschließen und auf Gleichspannung (DC) am Oszilloskop umschalten.
2. CD-Platte einlegen und abspielen; den 0-Punkt des Focus-signals beachten.
3. Auf »STOP« schalten und den jetzt angezeigten Gleichspannungswert mit RV 101 auf den gleichen 0-Punkt abgleichen ± 20 mV (siehe Abb. 1).
4. Abgleich wiederholen.

EF-Balance-Abgleich

1. Während die »CLEAR«-Taste gedrückt wird, Gerät einschalten (Testmode).
2. Oszilloskop an Testpunkt »TE« und Masse anschließen und auf Gleichspannung umschalten.
3. CD-Platte einlegen und »PLAY«-Taste drücken.
4. »REPEAT«-Taste drücken, bis im Anzeigefeld »ONE REPEAT« erscheint.
5. Den Wellenzug am Oszilloskop mit RV 102 so abgleichen, daß die Plus- und Minushalbwellen auf den Nullpunkt bezogen symmetrisch ist (siehe Abb. 2).

Adjustment CD player

Instruments required:

- Frequency counter
- Tesc disc Philips 3
- Oscilloscope

Tracking offset adjustment

This tracking offset adjustment does not need a CD disc.

1. Set the unit power on.
2. Connect the oscilloscope to the test point "TP. TR OUT" and to ground. Switch to "DC" on the scope.
3. Adjust RV 103 on the main P.C.B. for 0 Volt (dc) ± 20 mV on the scope.

Focus-servo offset

1. Connect oscilloscope to the test point "FE" and to ground. Switch to "DC" on the scope.
2. Load a disc and playback.
3. Note the voltage (DC) on the scope and press the "STOP" button.
4. Adjust RV 101 so that the voltage becomes the same as step 3 ± 20 mV (see picture 1).
5. Repeat step 2 to 4 until the voltages in step 3 and 4 are identical.

EF signal balance

1. Power the unit on by pressing the key "CLEAR" on the front panel. The unit is set to "TEST" mode.
2. Connect the oscilloscope to the test point TE and to ground. Switch to "DC" on the scope.
3. Load a disc and playback.
4. Press the "REPEAT" button (set the unit to "ONE REPEAT" mode).
5. Adjust RV 102 so that the signal has symmetrical plus and minus swing on the scope. Adjust the height of the waveform for accurate adjustment (see picture 2).

Abb. 1

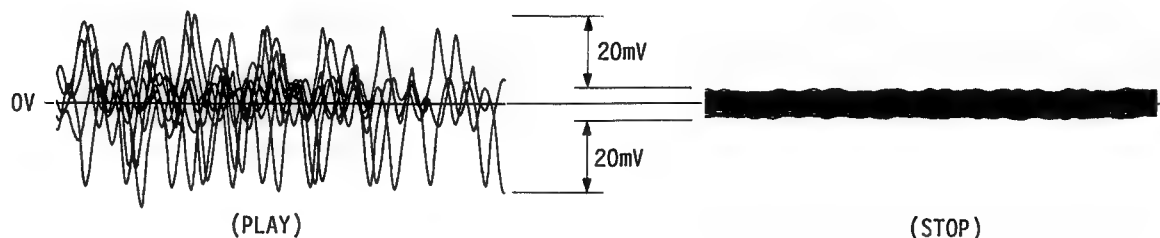
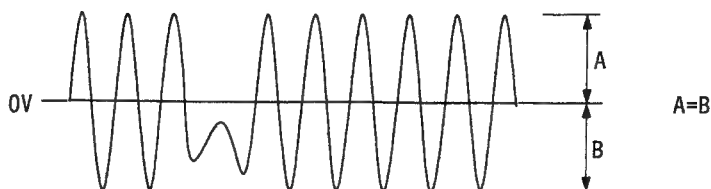
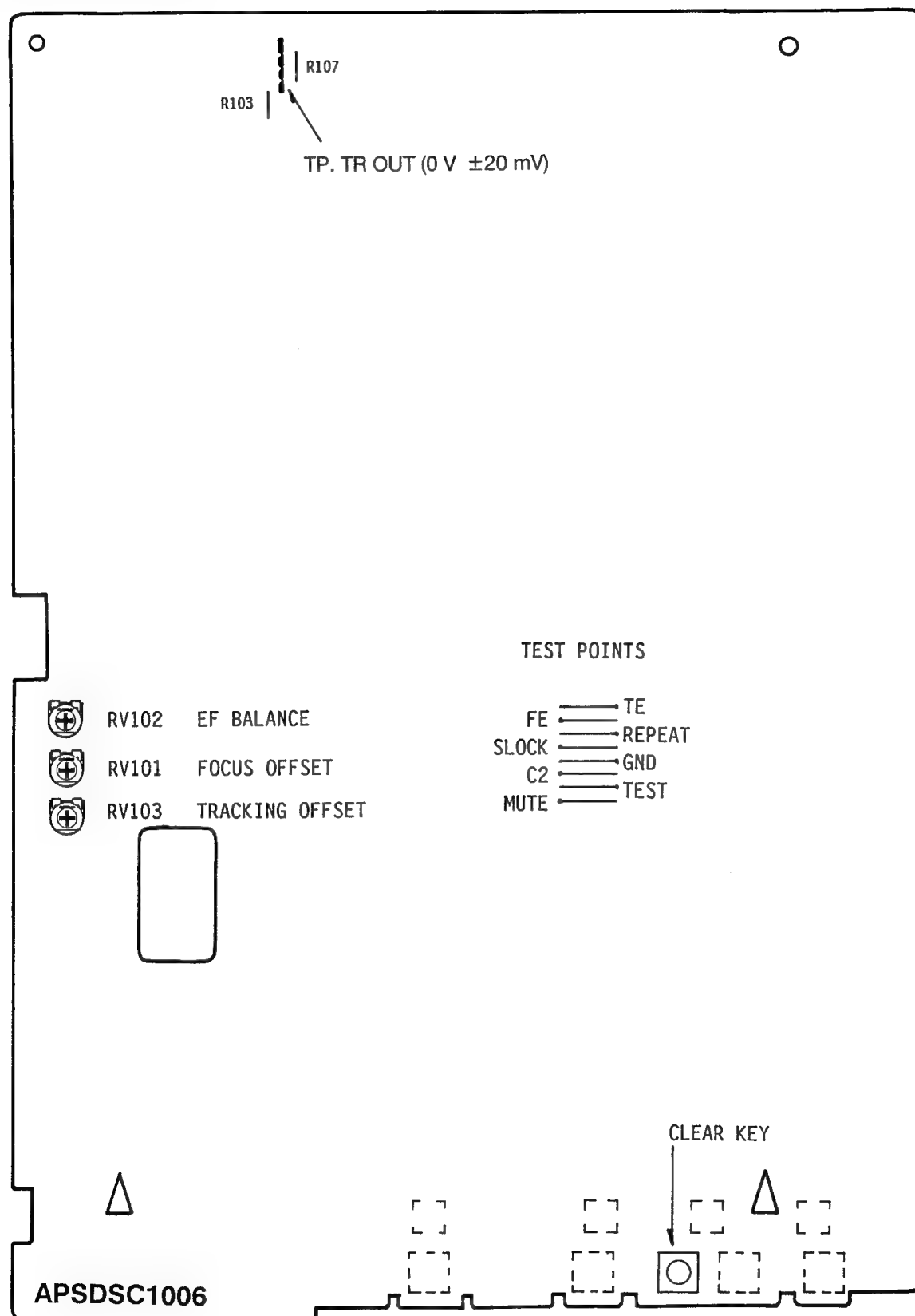


Abb. 2



Abgleichpunkte Adjustment locations



Fehlerdiagnose

Achtung:

Während der folgenden Kontrollarbeiten nicht direkt von oben in das Laser-Abtastsystem blicken.

Das Abtastsystem von schräg oben betrachten und einen Abstand von mehr als 30 cm zwischen den Augen und dem Laser-Abtastsystem einhalten.

A: Überprüfung der Laserdiode

Die Objektivlinse des Laser-Abtastsystems bewegt sich etwa vier Sekunden auf und ab, wenn sich das Plattenfach ohne eingelegte Platte schließt. Der Laserstrahl ist ein sehr kleiner roter Punkt. Während sich die Linse auf und ab bewegt, überprüfen Sie, ob aus dem Laser-Tastsystem ein Laserstrahl kommt.

B: Suche des Brennpunkts

Nachdem sich das Plattenfach ohne eingelegte Platte geschlossen hat, bewegt sich das Laser-Abtastsystem zur Mitte der Platte, und die Objektivlinse des Laser-Abtastsystems bewegt sich für die Dauer von etwa vier Sekunden auf und ab.

Wenn der CD-Spieler diese Bewegung nicht ausführt, müssen Endannäherungsschalter (Close-end switch) und Wegbegrenzungsschalter (inside-limit switch) überprüft werden.

C: SLOCK Signal

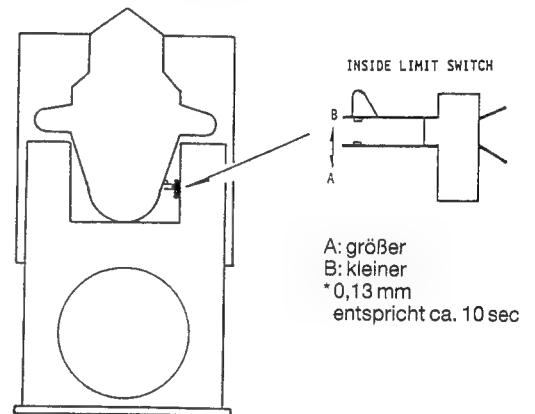
Überprüfung des Frame-Sync-Signals (U401/pin 29). Das GFS-Signal erhält einen hohen Pegel und bleibt in diesem Zustand.

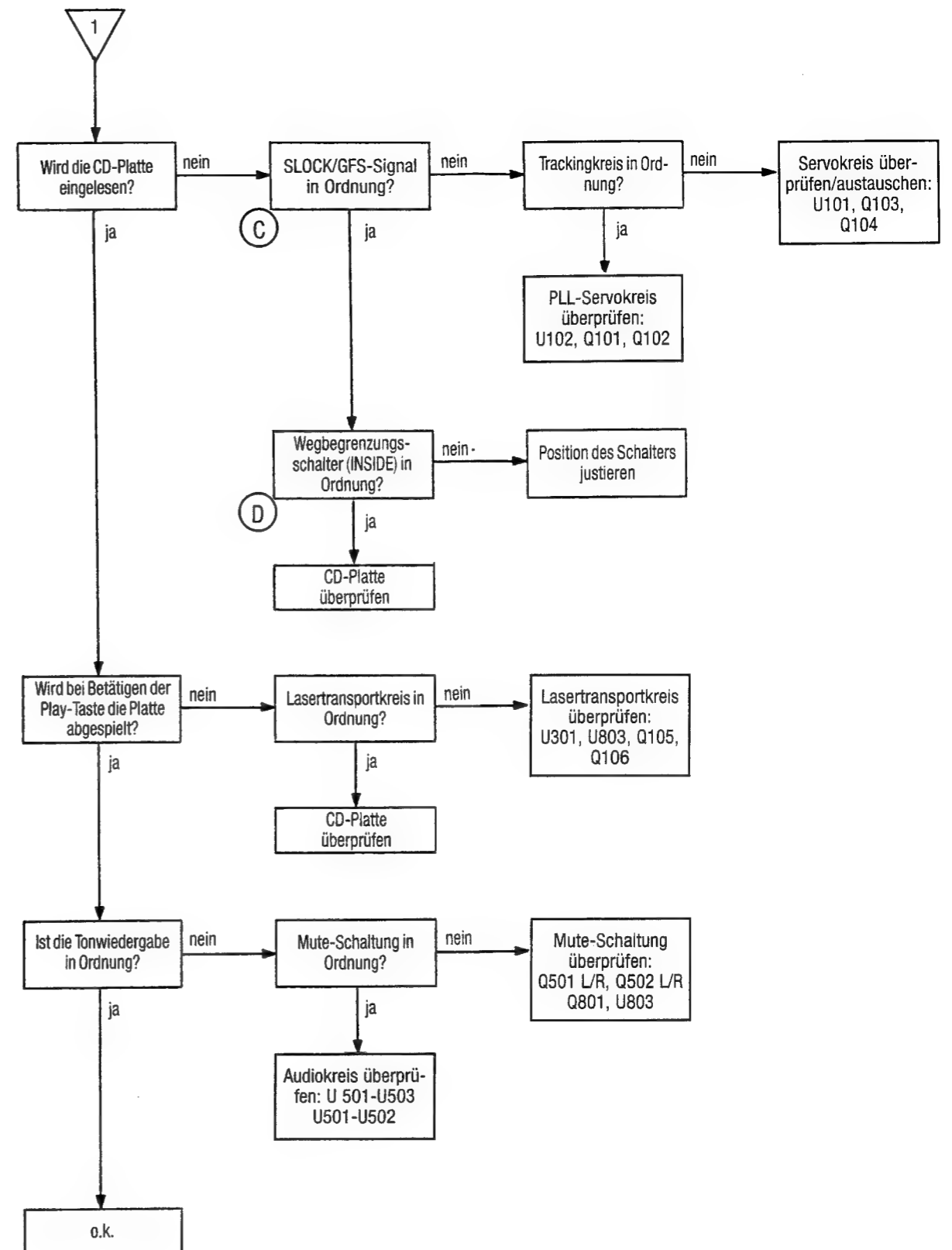
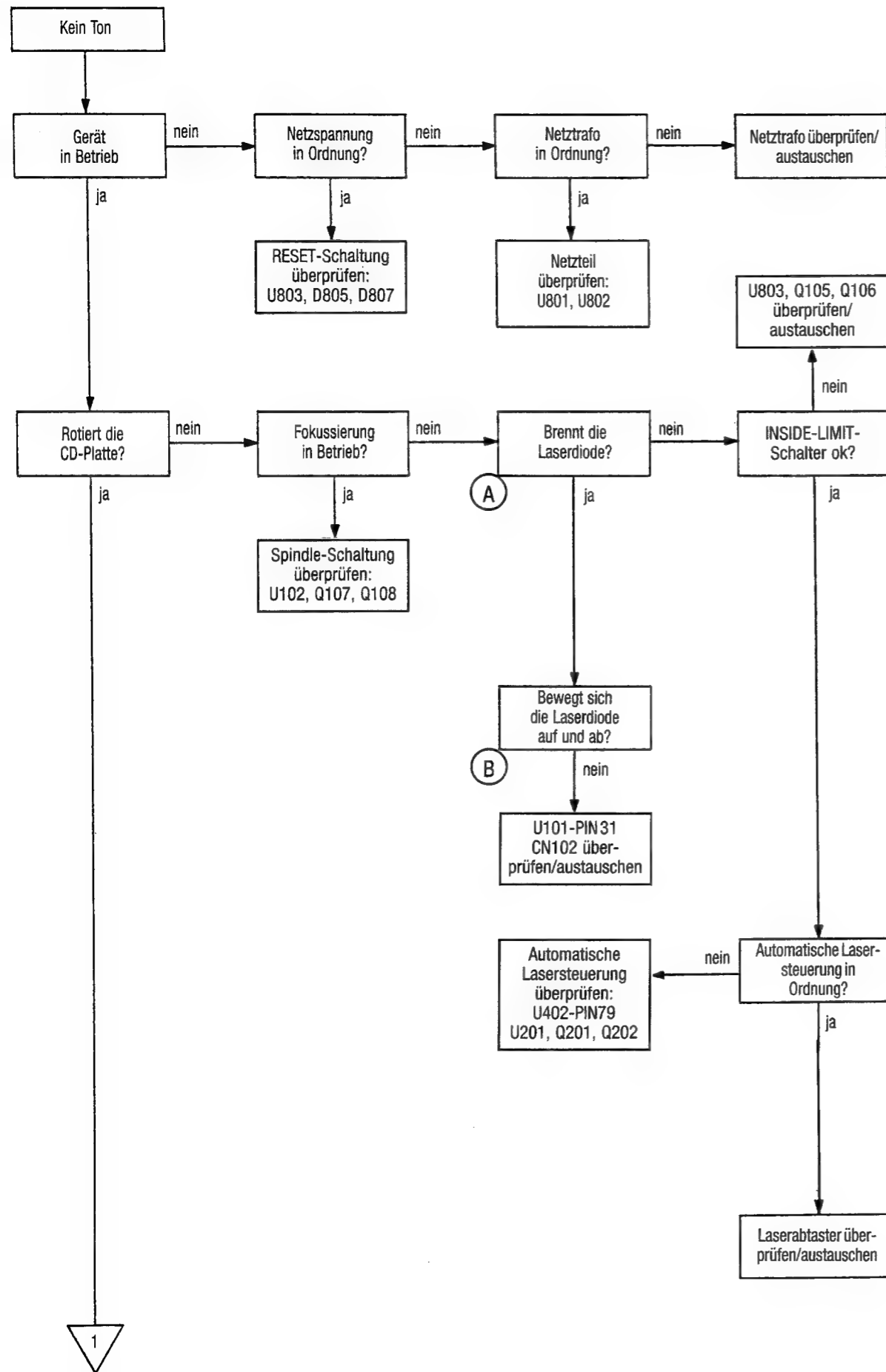
D: Position des Wegbegrenzungs-Schalters (inside-limit switch)

Überprüfen Sie, ob die Position des Schalters sich im Abtastanfangsbereich (Disk Lead-in area) der Platte befindet. Die Überprüfung der Position erfolgt folgendermaßen:

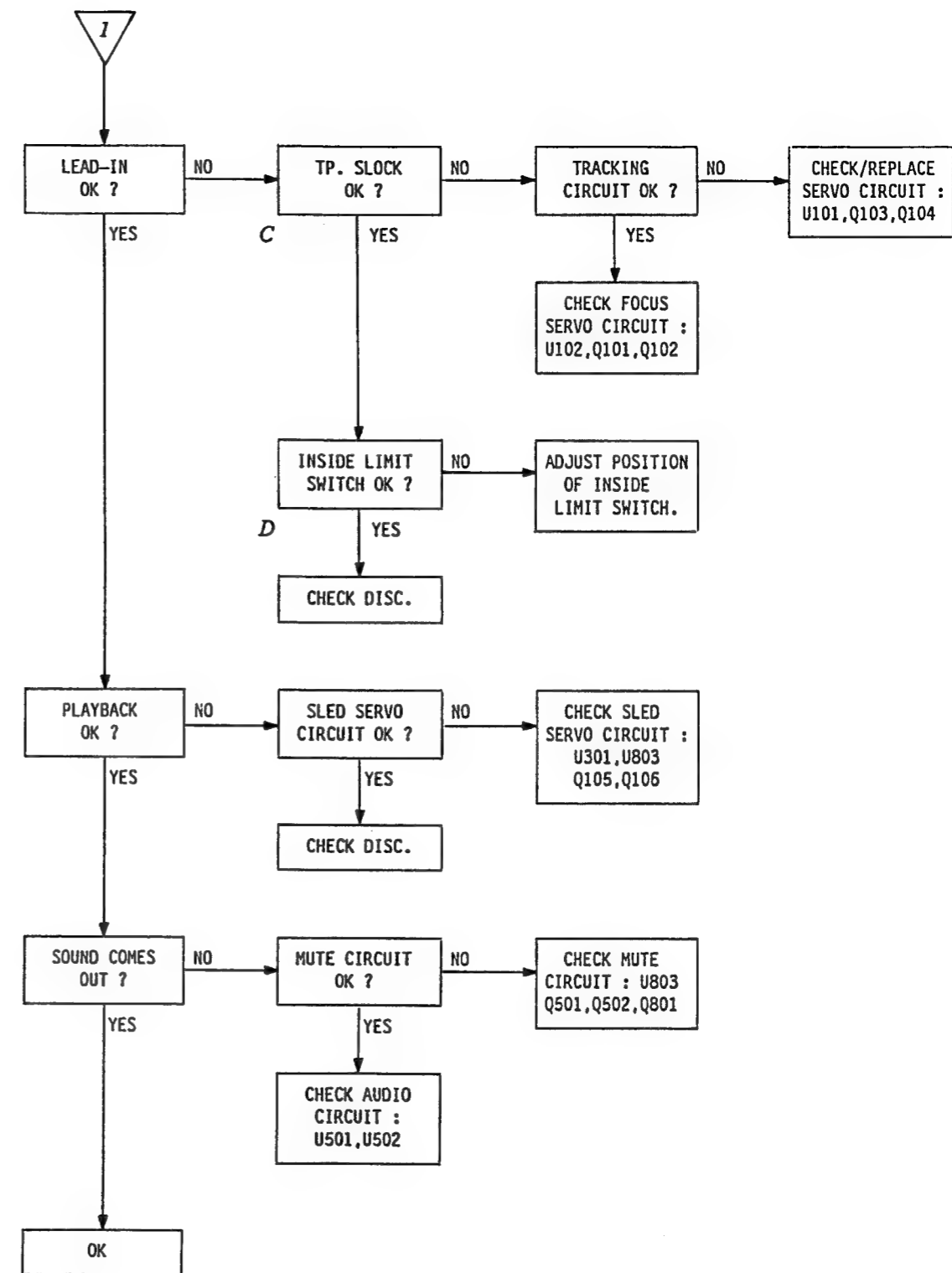
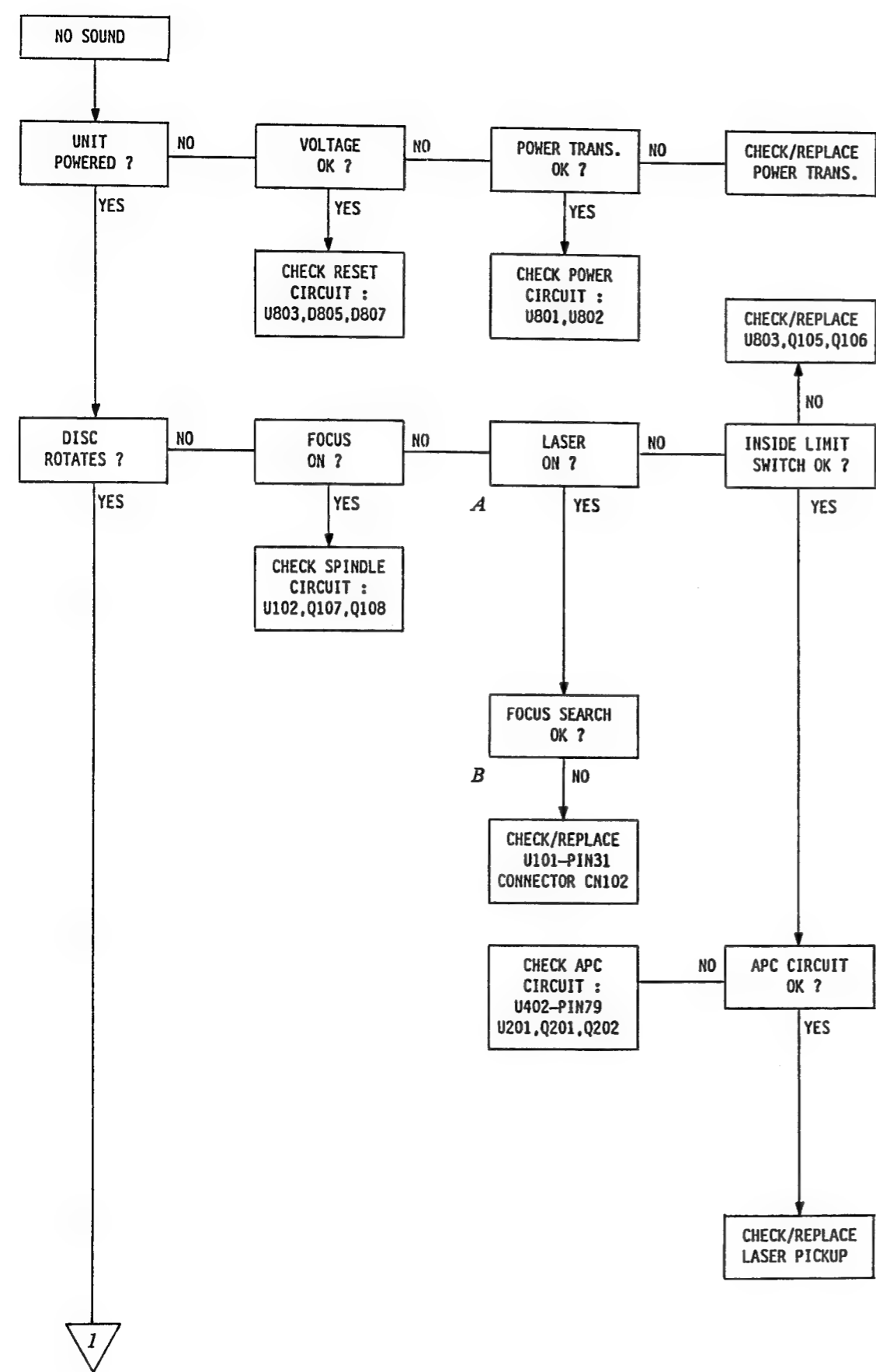
• Testdisc: Sony type 4

1. Testdisc in CD-Schlitten einlegen.
2. Gerät ausschalten.
3. Während die »CLEAR«-Taste gedrückt wird, Gerät wieder einschalten (Test mode).
4. Die Position des Schalters so einstellen, daß in der Anzeige 380 bis 480 erscheint.





Trouble shooting



Caution:

Do not view the laser pickup from directly above during the following check.

View the pickup on a slant from the upper side and keep a distance of more than 12 inches from your eyes to the laser pickup.

A: Laser diode light check

The object lens of the laser pickup goes up and down for about four seconds when the disc tray closes with no disc. The laser beam is a very small red point.

While the lens goes up and down, check that laser goes from the laser pickup.

B: Focus search

After the disc tray is closed with no disc, the laser pickup goes to the center of the disc and the object lens of the laser pickup begins going up and down for about four seconds.

If the player does not perform the above motion, check the close-end switch and the inside-limit switch.

C: SLOCK signal

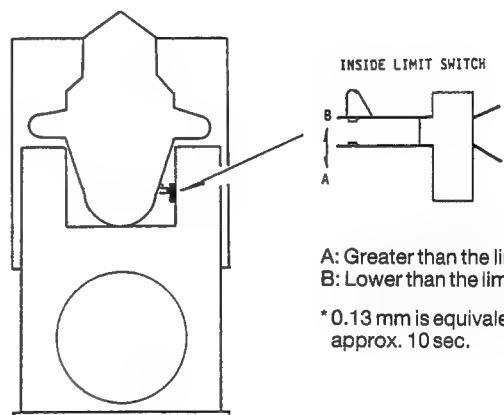
Judgment of frame sync signal (U401/pin 29). GFS signal turns to high and is locked.

D: Position of the inside limit switch

Check that the position of the switch is in the disc lead-in area. To check the position perform following:

● Test disc: SONY type 4

1. Set the CD disc to the disc tray.
2. Turn OFF the power switch.
3. By pressing the "CLEAR" key, set the unit "POWER ON" (Test mode).
4. Adjust the inside limit switch so the display shows from 380 to 480.



A: Greater than the limit.
B: Lower than the limit.

* 0.13 mm is equivalent to approx. 10 sec.

U101 HA12095NT
RF Amp, Servo Amp.



U401 HD49201
Digital Signal Processor

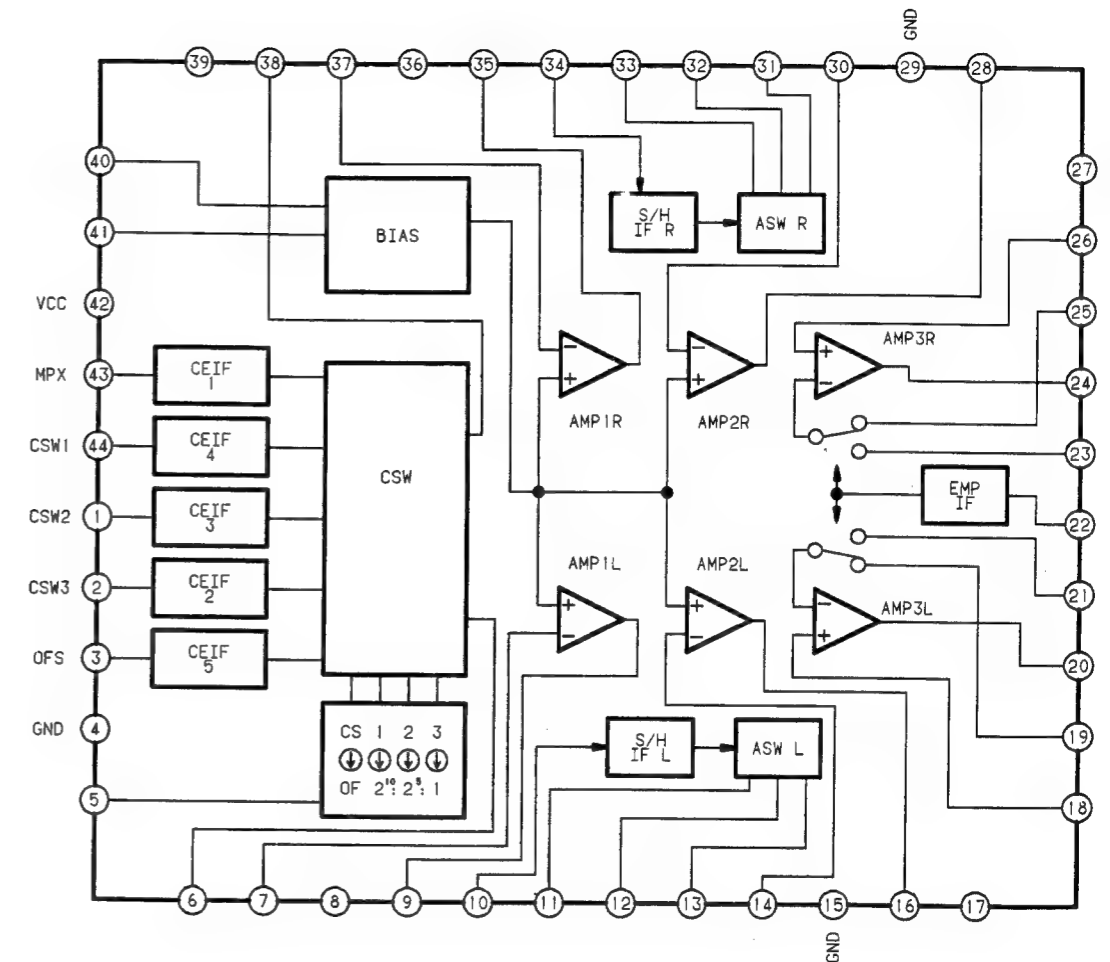
| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|--------------------------------------------------|
| 1 | TC1 | 0 | NC |
| 2 | TC2 | I/O | TP, C2 |
| 3 | TEST | I | Connect to +5V. |
| 4 | TRST | I | Connect to +5V. |
| 5 | TFCK | 0 | NC |
| 6 | X17G | 0 | NC |
| 7 | VDD | — | Connect to +5V. |
| 8 | X8 | 0 | NC |
| 9 | X17 | 0 | NC |
| 10 | XCI | I | X'tal oscillator input (34.5744MHz) |
| 11 | XCO | 0 | X'tal oscillator output. |
| 12 | VSS | — | Ground. |
| 13 | EFMS | I | EFM signal from U101. |
| 14 | DSLCL | 0 | Data slice level control output. |
| 15 | TOK | I | Connect to ground. |
| 16 | TDSTR | I | Connect to ground. |
| 17-24 | | | NC |
| 25 | FOK | I | Focus OK data from U101. |
| 26 | PWM | 0 | Spindle motor drive signal. |
| 27 | PREF | 0 | Reference output for spindle motor. |
| 28 | PD | 0 | Phase comparator output for spindle motor. |
| 29 | SLOCK | 0 | Frame sync. lock signal output. |
| 30 | CLK | I | Clock for serial data form U402. |
| 31 | XLT | I | Data latch signal from U402. |
| 32 | VDD | — | Connect to +5V. |
| 33 | DATA | I | Serial control data from U402. |
| 34 | XRST | I | System reset data from U803. |
| 35 | CNIN | I | Clock data input for track numbers are counted.; |
| 36 | SENS | 0 | Outputs a number of tracks counted. |
| 37 | MUT | I | Muting input for DAC output. |
| 38 | QOK | 0 | Operational output of SUBCODE Q (low OK) |
| 39 | SUBCK | — | Connect to ground. |
| 40 | SUBOUT | — | NC |
| 41 | QDATA | 0 | SUBCODE Q output. |
| 42 | S1 | 0 | SUBCODE SYNC.pulse output. |
| 43 | CFCK | 0 | CLOCK DATA output latches data from SUBCODE Q. |
| 44 | CDP | 0 | SUBCODE P output. |
| 45 | TEF | — | NC |
| 46 | MPX | 0 | CLOCK signal for L/R channel. |
| 47 | DMX | 0 | Outputs a L-ch discharge signal. |
| 48 | QMX | 0 | Outputs a R-ch discharge signal. |
| 49 | DAS | 0 | Outputs a L-ch S/H signal. |
| 50 | CKX | 0 | Outputs a R-ch S/H signal. |
| 51 | DASW | 0 | Ground |
| 52 | VSS | — | Ground |
| 53 | VSS | — | Ground |
| 54 | CSW1 | 0 | Power supply control signal for DAC. |
| 55 | CSW2 | 0 | Power supply control signal for DAC. |

| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|--------------------------------------|
| 56 | CSW3 | 0 | Power supply control signal for DAC. |
| 57 | OFCS | 0 | Offset cancelling control signal. |
| 58 | VDD | — | +5V |
| 59 | VSS | — | Ground |
| 60 | RD7 | 0 | DATA to U403. |
| 61 | RD6 | 0 | DATA to U403. |
| 62 | RD5 | 0 | DATA to U403. |
| 63 | RD4 | 0 | DATA to U403. |
| 64 | RD3 | 0 | DATA to U403. |
| 65 | RD2 | 0 | DATA to U403. |
| 66 | RD1 | 0 | DATA to U403. |
| 67 | RDO | 0 | DATA to U403. |
| 68 | RA0 | 0 | ADDRESS to U403. |
| 69 | RA1 | 0 | ADDRESS to U403. |
| 70 | RA2 | 0 | ADDRESS to U403. |
| 71 | RA3 | 0 | ADDRESS to U403. |
| 72 | RA4 | 0 | ADDRESS to U403. |
| 73 | RA5 | 0 | ADDRESS to U403. |
| 74 | RA6 | 0 | ADDRESS to U403. |
| 75 | RA7 | 0 | ADDRESS to U403. |
| 76 | RA8 | 0 | ADDRESS to U403. |
| 77 | RA9 | 0 | ADDRESS to U403. |
| 78 | WE | 0 | Write enable to U403. |
| 79 | RA10 | 0 | ADDRESS to U403. |
| 80 | CS | 0 | Chip select DATA to U403. |

U402 HD40808A01
CPU

| Pin No. | Symbol | I/O | Function |
|---------|---------|-----|----------------------------------------------------|
| 1 | D2 | 0 | Turns to low to mute the unit signal output. |
| 2 | DIRC | 0 | Control signal to U101. |
| 3 | XLT | 0 | Servo control signal to U101, U401. |
| 4 | MUT | 0 | Turns to high to mute the audio signal. |
| 5 | D6 | I | Keyswitch return signal. |
| 6 | D7 | I | Selects remote control signal.(active low) |
| 7 | SENS | I | A kinds of timing inputs. |
| 8 | CNIN | I | Tracking pulse input. |
| 9 | FOK | I | When focus is in, turns to high. |
| 10 | VCREF | I | Remote control signal input. |
| 11 | D12 | I | CRCF signal from U401. |
| 12 | GFS | I | When SPINDLE SERVO is locked,turns to high. |
| 13 | TEST | I | +5V |
| 14 | X1 | - | +5V |
| 15 | X2 | - | NC |
| 16 | GND | - | Ground |
| 17 | WFCK | I | |
| 18 | SUBQ | I | SUBCODE Q input from U401. |
| 19 | DATA | - | Serial control DATA. |
| 20 | CLK | - | Clock to transfer serial DATA. |
| 21-28 | R10-23 | I | Keyswitch return signal. |
| 29 | R30 | I | Detects the head location, inside limit switch. |
| 30 | OPEND | I | When the disc tray fully opens, this turns to low. |
| 31 | SCOR | I | SUBCODE SYNC,S0 + S1 input. |
| 32 | R33 | I | Remote control signal input. |
| 33-51 | SEG1-19 | 0 | Segment data. |
| 52-64 | | - | NC |
| 65 | COM1 | 0 | Display data. |
| 66 | COM2 | 0 | Display data. |
| 67 | COM3 | 0 | Display data. |
| 68 | COM4 | - | NC |
| 69 | V1 | | LCD bias voltage. |
| 70 | V2 | | LCD bias voltage. |
| 71 | V3 | | LCD bias volatage. |
| 72 | NUMO | | NC |
| 73 | NUMO | | NC |
| 74 | NUMG | | Ground |
| 75 | VCC | | +5V |
| 76 | OSC1 | I | X'tal oscillator input. (4MHz) |
| 77 | OSC2 | 0 | X'tal oscillator output. |
| 78 | RESET | I | RESET input signal |
| 79 | LD- | 0 | When this level is low, LASER DIODE is on. |
| 80 | EMPHA | 0 | Turns to high, the disc data is emphasized. |

U501 HA12018MP
DAC



| Pin No. | Symbol | I/O | Function |
|---------|--------|-----|---------------------------------------------------|
| 1 | CSW2 | I | Controls current switch 2. |
| 2 | CSW3 | I | Controls current switch 3. |
| 3 | OFS | I | Controls Offset current switch. |
| 4 | GND1 | — | Ground |
| 5 | BYP1 | — | Bypass |
| 6 | TEST1 | — | Left channel DAC output. |
| 7 | IAIL | I | Left channel negative input for integral amp. |
| 8 | VCC2 | — | Power supply. |
| 9 | IAOL | O | Left channel input for integral amp. |
| 10 | S/HL | I | Left channel control signal for sample-hold amp. |
| 11 | ASPL | I | Left channel input for analog switch. |
| 12 | ASNL | I | Left channel negative input for analog switch. |
| 13 | ASOL | O | Left channel output from analog switch. |
| 14 | SHNL | I | Left channel sample-hold negative input. |
| 15 | GND2 | — | Ground |
| 16 | SHOL | O | Left channel output from sample-hold amp. |
| 17 | REFL | — | Left channel referential voltage. |
| 18 | EPL | I | Left channel input signal for emphasis |
| 19 | EN1L | I | Left channel negative input (1) for emphasis |
| 20 | EOL | O | Left channel output signal from emphasis |
| 21 | EN2L | I | Left channel negative input (2) for emphasis |
| 22 | ESW | I | Controls emphasis ON/OFF |
| 23 | EN2R | I | Right channel negative input (2) for emphasis |
| 24 | EOR | O | Right channel output signal from emphasis |
| 25 | EN1R | I | Right channel negative input (1) for emphasis |
| 26 | EPR | I | Right channel input signal for emphasis |
| 27 | REFR | — | Right channel referential voltage. |
| 28 | SHOR | O | Right channel output from sample-hold amp. |
| 29 | GND3 | — | Ground |
| 30 | SHNR | I | Right channel negative input for sample-hold amp. |
| 31 | ASOR | O | Right channel output from analog switch. |
| 32 | ASNR | I | Right channel negative input for analog switch. |
| 33 | ASPR | I | Right channel input for analog amp. |
| 34 | S/HR | I | Right channel control signal for sample-hold amp. |
| 35 | IAOR | O | Right channel output from integral amp. |
| 36 | VCC3 | — | Power supply |
| 37 | IAIR | I | Right channel negative input for integral amp. |
| 38 | TES2 | — | Right channel DAC outpt. |
| 39 | BYP2 | — | Bypass |
| 40 | ISET | — | Connects resister fixes current drain. |
| 41 | BYP3 | — | Bypass |
| 42 | VCC1 | — | Power supply for DAC |
| 43 | MPX | I | Controls MPX switch |
| 44 | CSW1 | I | Controls current switch 1. |

Ersatzteilliste elektrische Teile

Spare parts list electrical parts

Receiver

| Bestell-Nr./ Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|---------------------------|----------------------------------|--------------------------------|----------------------|---------------------------|
| 39 250 00 | HF-Platine | RF P.C.B. | TC 20 | F 7 |
| 23 964 00 | Transistor BC 547 | Transistor BC 547 | T 301 | A 4 |
| 23 965 00 | Transistor BC 558 | Transistor BC 558 | T 703-705 | A 4 |
| 31 309 00 | Transistor BF 451 | Transistor BF 451 | T 201 | A 3 |
| 31 318 00 | Transistor BC 550 | Transistor BC 550 | T 601-603 | A 1 |
| 23 951 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 302/602 | A 2 |
| 31 463 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 301 | A 1 |
| 31 313 00 | Diode KV 1260 | Diode KV 1260 | D 401 | B 1 |
| 15 107 00 | IC TDA 1578 A Stereo-Decoder | IC TDA 1578 A Stereo decoder | IC 301 | C 1 |
| 38 274 00 | IC UPD 1708 | IC UPD 1708 | IC 701 | C 9 |
| 23 701 00 | IC 7805 1,5 A, 5 V Stabi | IC 7805 1.5 A, 5 V Stabi | IC 702 | B 1 |
| 38 439 00 | IC LA 1265 ZF T 1000 | IC LA 1265 ZF T 1000 | IC 201 | B 4 |
| 23 293 00 | Trimmer-Kondensator | Trimmer capacitor | C 408 | A 3 |
| 31 398 00 | Sicherungs-Widerstand 100 Ohm | Fuse resistor 100 Ohm | R 210/318 | A 2 |
| 01 255 00 | Trimpoti 50 K/47 K liegend | Trimming poti 50 K/47 K | R 301/308 | A 2 |
| 15 122 00 | Akkumulator 60 DK Ni-Cd 1,2 V | Accumulator 60 DK Ni-Cd 1.2 V | | B 4 |
| 23 423 00 | Filter LPF-V10A1 | Filter LPF-V10A1 | Fi 301/302 | A 9 |
| 31 311 00 | Spule MW-Oszillator | Coil MW oscillator | L 401 | A 4 |
| 31 944 00 | Spule LW-Oszillator | Coil LW oscillator | L 402 | A 3 |
| 38 442 00 | Spule Quadratur | Coil quadratur | L 201 | A 6 |
| 38 443 00 | Spule Quadratur | Coil quadrature | L 202 | A 6 |
| 38 454 00 | Spule AM-ZF | Coil AM-ZF | L 204 | A 3 |
| 31 310 00 | Filter Keramik 455 | Filter ceramic 455 | Fi 204 | A 4 |
| 31 762 00 | Keramikfilter SFE 10,7 | Filter ceramic SFE 10.7 | Fi 201/202 | A 3 |
| 38 440 00 | Keramikfilter AM BFU 455 C | Filter ceramic AM BFU 455 C | Fi 203 | A 3 |
| 31 656 00 | Tastatur 3fach | Key set 3-switches | S 1 | C 0 |
| 18 154 00 | Lampe blau | Lamp blue | LCD | A 6 |
| 18 155 00 | LCD-Display | LED display | | C 3 |
| 31 530 00 | Tuner-UKW | Tuner-UKW | | D 1 |
| 20 930 00 | Ferritantenne | Wave magnet | TC 21 | B 8 |
| 18 238 00 | Antennenbuchse | Antenna socket | TC 22 | B 0 |
| 39 252 00 | Bedienteil-Platine | Control P.C.B. | TC 23 | C 4 |
| 11 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 711-715 | A 2 |
| 23 366 00 | Taste KHH 10908 | Button KHH 10908 | Tuner | A 4 |
| 39 246 00 | Klangregler-Platine | Tone control P.C.B. | TC 24 | F 1 |
| 03 975 00 | Transistor BC 338 B | Transistor BC 338 B | T 802/804 | A 4 |
| 23 964 00 | Transistor BC 547 B | Transistor BC 547 B | T 901-910 | A 4 |
| 38 327 00 | Transistor BC 327-16 | Transistor BC 327-16 | T 801/803/903 | A 2 |
| 31 729 00 | Diode 1 N 4002 | Diode 1 N 4002 | D 913-916 | A 2 |
| 38 541 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 801 | A 0 |
| 38 616 00 | Zenerdiode ZY 5,6 | Zenerdiode ZY 5.6 | D 806 | A 2 |
| 03 847 00 | IC LM 340 T 12 Stabi 12 V | IC LM 340 T 12 Stabi 12 V | IC 909/910 | B 1 |
| 23 257 00 | IC LA 6458 DS Dual-OP | IC LA 6458 DS Dual-OP | IC 802, 803, 901-905 | A 9 |
| 31 759 00 | IC L 7912 CV | IC L 7912 CV | IC 908 | A 6 |
| 31 961 00 | IC MC 33078 P | IC MC 33078 P | IC 801 | A 6 |
| 38 277 00 | IC TC 9149 | IC TC 9149 | IC 907 | B 7 |
| 38 278 00 | IC LC 7818 | IC LC 7818 | IC 906 | B 9 |
| 38 441 00 | IC IR-Empfänger | IC IR receiver | IC 911 | B 6 |
| 38 490 00 | Drehwiderstand Bass 10 K | Rotary resistor Bass 10 K | R 829/830 | B 2 |
| 38 491 00 | Drehwiderstand Treble 20 K | Rotary resistor Treble 20 K | R 819/820 | B 2 |
| 38 492 00 | Drehwiderstand Balance 10 K | Rotary resistor Balance 10 K | R 805/806 | B 2 |
| 38 493 00 | Drehwiderstand Loudness 10 K | Rotary resistor LOUDNESS 10 K | R 803/804 | B 2 |
| 23 578 00 | Chinch-Buchse 4fach | Chinch socket 4 | 2 X | B 0 |
| 38 539 00 | Chinch-Buchse 1fach | Chinch socket 1 | CD-RC | A 5 |
| 31 331 00 | Montageclip TO-220 | Mounting clip TO-220 | IC12V | A 0 |
| 39 159 00 | Lautstärkepoti kpl. | Volume potentiometer | TC 25 | C 9 |
| 39 253 00 | Quellenumschalter-Platine | Mode selection P.C.B. | TC 26 | C 5 |
| 38 495 00 | LED LN 417 YPH gelb | LED LN 417 YPH yellow | D 903-907 | A 3 |
| 38 496 00 | LED LN 217 RPH rot | LED LN 217 RPH red | D 908 | A 3 |
| 38 497 00 | Halter LED | Holder LED | | A 2 |
| 23 366 00 | Taste KHH 10908 | Button KHH 10908 | | A 4 |
| 38 410 00 | Anzeigeinstrument (Power) | Power instrument | PA 20 | C 5 |
| 39 251 00 | Power-Anzeige-Platine | Power indication P.C.B. | PA 21 | C 3 |
| 23 964 00 | Transistor BC 547 B T092 | Transistor BC 547 B T092 | T 401/402 | A 4 |
| 02 440 00 | Zenerdiode ZPD 3,9 | Zenerdiode ZPD 3.9 | T 403/404 | A 5 |
| 11 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 405 | A 2 |
| 38 618 00 | Diode BAV 20 | Diode BAV 20 | D 401/402 | A 1 |
| 01 256 00 | Trimpoti 5 K/4,7 K liegend | Trimming poti 5 K/4.7 K | R 413/414 | A 4 |
| 38 407 00 | Netztrafo | Power transformer | PA 22 | E 3 |
| 39 266 00 | Endstufen-Platine | Output amplifier P.C.B. | PA 23 | F 3 |
| 38 429 00 | IC STK 4241 MK 5 | IC STK 4241 MK 5 | IC 101 | E 2 |
| 38 432 00 | Gleichrichter | Rectifier | GL 101 | B 5 |
| 38 431 00 | ELKO radial 6800/80 | ELCO 6800/80 | C 103/104 | C 4 |
| 23 433 00 | METOX-Widerstand 4,7 Ohm/1 Watt | METOX resistor 4.7 Ohm/1 Watt | R 117/118 | A 1 |
| 38 065 00 | Drahtwiderstand 22 Ohm | Wire resistor 22 Ohm | R 119/120 | A 6 |
| 31 854 00 | Sicherungs-Widerstand 100 Ohm | Fuse resistor 100 Ohm | R 116 | A 2 |

| Bestell-Nr./ Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|-----------------------------------|---------------------------------------|---------------------------------------|------------------|---------------------------|
| 39 075 00 | Kurzschlußsicherungs-Platine | Short circuit fuse P.C.B. | PA 24 | C 1 |
| 38 127 00 | Transistor 2 SA 1207 R T092 | Transistor 2 SA 1207 R T092 | T 401/402 | A 3 |
| 38 128 00 | Transistor 2 SA 1209 T0126 | Transistor 2 SA 1209 T0126 | T 404 | A 5 |
| 38 129 00 | Transistor 2 SC 2911 T0126 | Transistor 2 SC 2911 T0126 | T 403 | A 5 |
| 11 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 401/402 | A 2 |
| 39 264 00 | Netzschalter-Platine | Power switch P.C.B. | PA 25 | E 2 |
| 03 975 00 | Transistor BC 338 B | Transistor BC 338 B | T 203 | A 4 |
| 23 965 00 | Transistor BC 558 B T092 | Transistor BC 558 B T092 | T 202 | A 4 |
| 38 458 00 | Transistor BC 548 C | Transistor BC 548 C | T 201/204 | A 2 |
| 02 419 00 | IC HBF 14013A Flip-Flop | IC HBF 14013A Flip-Flop | IC 202 | A 7 |
| 23 701 00 | IC 7805 1,5 A 5 V Stabi | IC 7805 1,5 A 5 V Stabi | IC 201 | B 1 |
| 23 118 00 | Gleichrichter B40 C800 | Rectifier B40 C800 | GL 201 | B 4 |
| 31 729 00 | Diode 1 N 4002 | Diode 1 N 4002 | D 208/209 | A 2 |
| 38 541 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 201-207 | A 0 |
| 38 635 00 | Zenerdiode ZPD 6,8 | Zenerdiode ZPD 6,8 | D 202 | A 1 |
| 11 943 00 | Elko Radial 2200/35, D=18 mm, H=35 mm | Elko radial 2200/35, D=18 mm, H=35 mm | C 209 | B 0 |
| 38 117 00 | METOX 5%-Widerstand 560 Ohm/1 Watt | METOX resistor 39 Ohm/1 Watt | R 221-224 | A 1 |
| 38 606 00 | Widerstand 39 Ohm/½ Watt | Resistor 39 Ohm/½ Watt | R 208 | A 0 |
| 38 408 00 | Trafo EI | Transformer EI | TR 201 | C 2 |
| 38 435 00 | Tastensatz 3fach | Key set 3-switches | NS + SP | B 6 |
| 38 604 00 | Thermoschalter 100" | Thermo switch 100" | S 2 | B 4 |
| 38 516 00 | Relais IR 1A DC 6V | Relay IR 1A DC 6V | RE 201 | B 7 |
| 23 397 00 | Buchse Klinken | Socket | Headphone | A 9 |
| 39 254 00 | Lautsprecherbuchsen-Platine | Speaker socket P.C.B. | PA 26 | D 5 |
| 31 463 00 | Diode 1 N 4148 (A) | Diode 1 N 4148 (A) | D 301/302 | A 1 |
| 38 430 00 | Relais IR 2XU DC 24V | Relay IR 2XU DC 24V | RE 301/302 | B 9 |
| 38 031 00 | Push Terminal | Speaker socket | Speak | B 1 |
| 38 069 00 | Chinch-Buchse 2fach | Pin jack 2-jacks | IN/LR | A 7 |
| Nur für/only OPEN AIR 1000 | | | | |
| 39 255 00 | Lichtorgel-Netz-Platine | Flashlight power P.C.B. | PA 27 | D 8 |
| 38 447 00 | Triac 600V 4 A | Triac 600V 4 A | TR 1-3 | A 8 |
| 38 445 00 | IC U 217 B | IC U 217 B | IC 3-5 | B 1 |
| 38 446 00 | IC CQY 80 NG Optokoppler | IC CQY 80 NG | IC 6-8 | A 6 |
| 23 109 00 | Diode 1 N 4007 | Diode 1 N 4007 | D 5-7 | A 1 |
| 38 444 00 | Buchse Euronorm AC 250V 2,5A 3fach | Socket Euronorm AC 250V 2.5A 3set | Netz | B 8 |
| 39 257 00 | Lichtorgel-Bedienteil-Platine | Flashlight control P.C.B. | PA 28 | D 6 |
| 23 964 00 | Transistor BC 547 B T092 | Transistor BC 547 B T092 | T 1/3 | A 4 |
| 23 965 00 | Transistor BC 558 B T092 ***024340 | Transistor BC 558 B T092 ***024340 | T 2 | A 4 |
| 23 257 00 | IC LA 6458 DS Dual-OP ***231150 | IC LA 6458 DS Dual-OP ***231150 | IC 1/9 | A 9 |
| 38 514 00 | IC MC 33079 4fach OP | IC MC 33079 4-set OP | IC 2 | A 9 |
| 11 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 1-4 | A 2 |
| 11 810 00 | Drossel 100 µH | Coil 100 µH | DR 1 | A 3 |
| 38 471 00 | Drehwiderstand 22 K lin. | Rotary resistor 22 K | R 16, 28, 38, 66 | A 5 |
| 38 472 00 | Drehschalter | Rotary switch | S 1 | A 5 |
| 38 584 00 | Buchse-Klinken | Socket | Microphone | B 0 |
| 39 300 00 | Lichtorgel-LED-Platine | Flashlight LED P.C.B. | PA 29 | B 0 |
| 38 500 00 | Leuchtdiode gelb | LED yellow | D 6 | A 3 |
| 38 501 00 | Leuchtdiode grün | LED green | D 5 | A 3 |
| 38 502 00 | Leuchtdiode rot | LED red | D 7 | A 3 |

Cassettenrecorder/Cassette recorder

| Bestell-Nr./ Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|---------------------------|-----------------------------------------------|----------------------------------------|-----------------------|---------------------------|
| 27 621 00 | Cassettenrecorder FLS 902 kpl. | Cassette deck FLS 902 assembly | | G 2 |
| 45 275 00 | Grundplatine YDO 9010013 | Main P.C.B. YDO 9010013 | | E 9 |
| 37 727 00 | Aussteuerungsreglerplatine YDO 9010020 | Record level P.C.B. YDO 9010020 | | C 7 |
| 37 728 00 | Schalterplatine YDO 9010031 | Switch P.C.B. YDO 9010031 | | C 9 |
| 32 997 00 | IC LA 3161 | IC LA 3161 | IC 4 | B 0 |
| 32 998 00 | IC TC 4066 BP | IC TC 4066 BP | IC 2 | B 0 |
| 13 558 00 | IC LB 1416 | IC LB 1416 | IC 201 | B 5 |
| 37 730 00 | IC LA 2746 | IC LA 2746 | IC 3 | C 3 |
| 40 799 00 | IC LA 3246 | IC LA 3246 | IC 1 | B 2 |
| 24 533 00 | Transistor 2 SC 2634 S | Transistor 2 SC 2634 S | Q 1-14, 18, 19, 21-24 | A 3 |
| 03 728 00 | Transistor 2 SC 1317 R | Transistor 2 SC 1317 R | Q 15-17, 20 | A 5 |
| 11 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 1-6, 301 | A 2 |
| 23 214 00 | Diode GZA 9.1 Y | Diode GZA 9.1 Y | X 1 | A 1 |
| 13 955 00 | LED LN 217 RP rot | LED LN 2178 RP red | X 206, 401 | A 6 |
| 14 301 00 | LED LN 317 GP grün | LED LN 317 GP green | X 402 | A 6 |
| 13 954 00 | LED LN 417 YP gelb | LED LN 417 YP yellow | X 201-205 | A 6 |
| 34 030 00 | Löschoszillatorspule | Oscillator coil | L 10 | A 7 |
| 34 031 00 | Oszillatorspule | Oscillator coil | L 1-4 | A 7 |
| 31 129 00 | Sicherungswiderstand 4,7 Ohm ½ Watt | Fuse resistor 4.7 Ohm ½ Watt | R 109, 122 | A 2 |
| 34 032 00 | Drehwiderstand Aussteuerung | Rotary resistor rec. level | VR 201 | B 1 |
| 29 747 00 | Druckschalter | Push switch | Dolby, Hi-SP, Dubbing | B 1 |
| 34 033 00 | A/W-Schiebeschalter | Rec/PC switch | SW 1 | A 8 |
| 34 034 00 | Mikrofonbuchse | Microphone jack | | B 3 |

CD-Player/CD player

| Bestell-Nr./Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|-----------------------|----------------------------------|----------------------------------|--------------------------------|---------------------------|
| 45 903 00 | Grundplatine | Main P.C.B. | B 1 | G 7 |
| 45 904 00 | Netzteilplatine | Power supply P.C.B. | B 4 | E 0 |
| 46 019 00 | Buchsenplatine Chinch RC | Remote jack P.C.B. | B 5 | C 6 |
| 37 766 00 | IC TC 4071 BF | IC TC 4071 BF | U 1 | A 8 |
| 45 906 00 | IC HA 12095 NT | IC HA 12095 NT | U 101 | C 3 |
| 12 882 00 | IC NJM 4558 D | IC NJM 4558 D | U 102, 201, 803 | B 1 |
| 45 907 00 | IC HD 49201 | IC HD 49201 | U 401 | D 4 |
| 45 908 00 | IC HD 404808 A 01 | IC HD 404808 A 01 | U 402 | D 5 |
| 45 314 00 | IC 5816 | IC 5816 | U 403 | C 6 |
| 45 909 00 | IC HA 12108 MP | IC HA 12108 MP | U 501 | C 6 |
| 45 910 00 | IC BA 15218 | IC BA 15218 | U 502 | A 6 |
| 32 261 00 | IC MC 7805 CT | IC MC 7805 CT | U 801 | B 7 |
| 32 268 00 | IC MC 7905 CT | IC MC 7905 CT | U 802 | B 0 |
| 23 438 00 | Transistor 2 SB 709 A 2, AS Chip | Transistor 2 SB 709 A 2, AS Chip | Q 1-4 | A 2 |
| 29 582 00 | Transistor 2 SC 2060 | Transistor 2 SC 2060 | Q 101, 107 | A 6 |
| 24 796 00 | Transistor 2 SA 934 | Transistor 2 SA 934 | Q 102, 108 | A 6 |
| 45 318 00 | Transistor 2 SC 4040 | Transistor 2 SC 4040 | Q 103, 105 | A 4 |
| 45 319 00 | Transistor 2 SA 1560 | Transistor 2 SA 1560 | Q 104, 106 | A 4 |
| 34 692 00 | Transistor 2 SC 1740 | Transistor 2 SC 1740 | Q 109, 110, 401, 501, 502, 802 | A 2 |
| 34 601 00 | Transistor 2 SA 933 S | Transistor 2 SA 933 S | Q 111, 201, 202, 801 | A 6 |
| 45 911 00 | Transistor 2 SK 364 | Transistor 2 SK 364 | Q 503, 504 | A 7 |
| 01 241 00 | Diode 1 N 4148 | Diode 1 N 4148 | D 1-4 | A 2 |
| 45 912 00 | Diode DAP 202 K Chip | Diode DAP 202 K Chip | D 5 | |
| 24 750 00 | Diode 1 SS 133 | Diode 1 SS 133 | D 101-103, 805-809 | A 2 |
| 40 369 00 | Diode MPG06G | Diode MPG06G | D 801-804 | A 2 |
| 11 043 00 | Zenerdiode MA 3062 Chip | Zenerdiode MA 3062 Chip | DZ 1 | A 2 |
| 23 797 00 | Zenerdiode ZDP 4,3 | Zenerdiode ZDP 4.3 | DZ 801 | A 2 |
| 06 040 00 | Zenerdiode ZDP 5,6 | Zenerdiode ZDP 5.6 | DZ 802 | A 2 |
| 06 872 00 | Zenerdiode ZPD 5,1 | Zenerdiode ZPD 5.1 | DZ 803 | A 1 |
| 45 913 00 | Spule 3,3 µH | RF coil 3.3 µH | L 401 | A 3 |
| 45 322 00 | Filter LC 20 kHz | Filter LC 20 kHz | LPF 01, 02 | B 1 |
| 37 079 00 | Keramik-Oszillator 4,0 MHz | Ceramic oscillator 4.0 MHz | X 402 | A 9 |
| 45 914 00 | Quarz 34,5744 MHz | Crystal 34.5744 MHz | X 401 | B 3 |
| 45 320 00 | LCD-Display | LCD Display | Z 701 | C 6 |
| 45 321 00 | Lampe Display kpl. | Lamp LCD | Z 702 | |
| 37 443 00 | Trimpoti 10 kOhm | Trimming poti 10 kOhm | RV 101-103 | A 3 |
| 45 323 00 | Tipptaste mit Achse | Push button | SK 01, 03, 06, 09 | A 4 |
| 34 547 00 | Tipptaste mit Winkel | Push button | SK 02, 04, 05, 07, 08 | A 4 |
| 14 319 00 | Netzschalter | Power switch | SW 801 | B 6 |
| 45 324 00 | Netztrafo | Power transformer | PT 801 | C 7 |

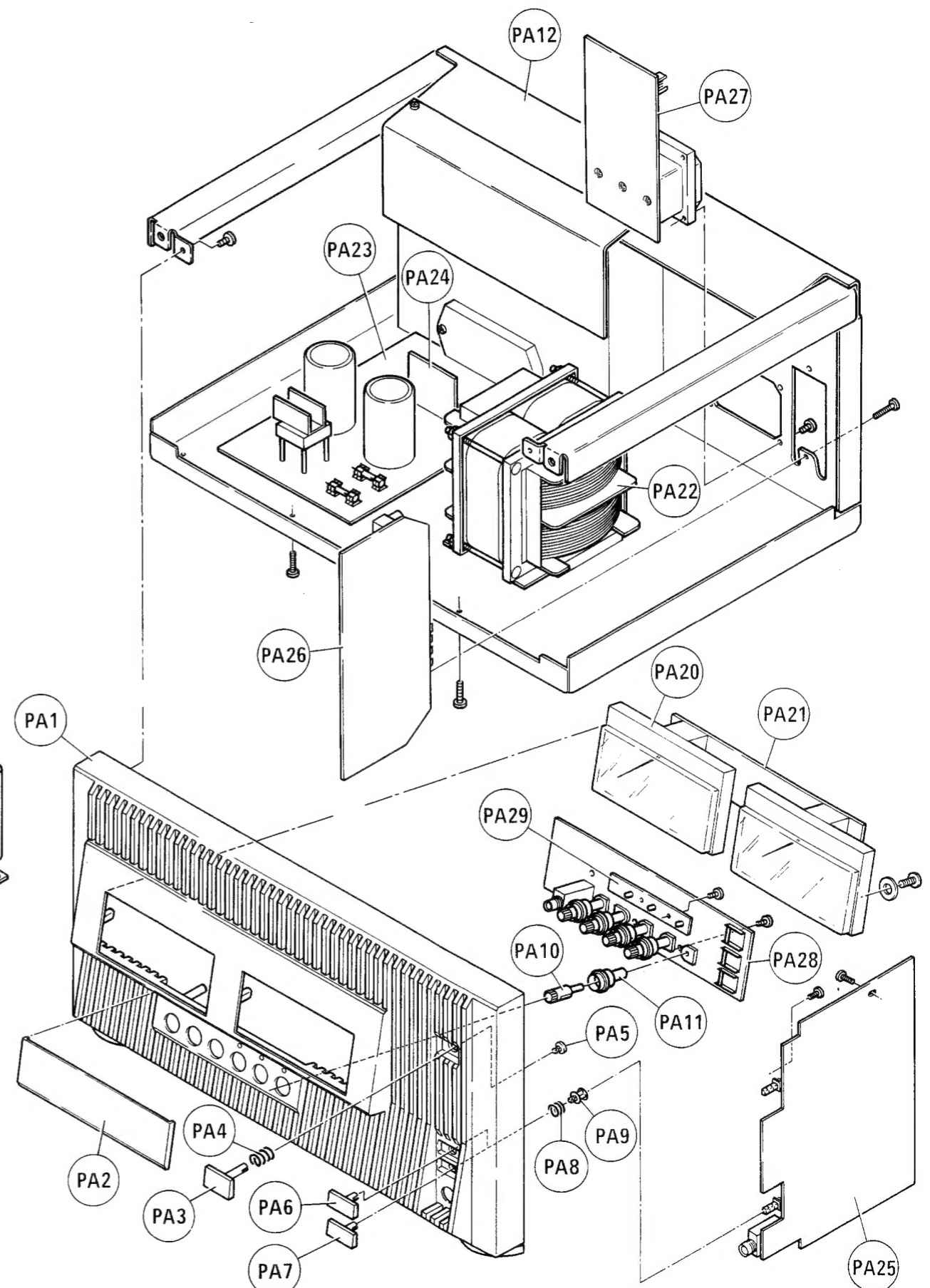
Ersatzteilliste Gehäuseteile

Spare parts list housing parts

| Bestell-Nr./Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|-----------------------|--------------------------------------|---------------------------------|----------|---------------------------|
| 41 927 00 | Frontteil RF + CA | Front panel RF + CA | TC 1 | D 4 |
| 18 247 00 | Blende bedruckt Tuner | Window tuner | TC 2 | B 5 |
| 18 251 00 | Blende bedruckt Cassette | Window cassette | TC 3 | B 4 |
| 18 254 00 | Cassettenfachdeckel Tape A | Cassette window Tape A | TC 4 | B 5 |
| 18 257 00 | Cassettenfachdeckel Tape B | Cassette window Tape B | TC 5 | B 5 |
| 18 137 00 | Alu-Drehknopf | Rotary knob volume | TC 6 | B 9 |
| 18 141 00 | Knebelknopf | Rotary knob tone control | TC 7 | A 5 |
| 31 863 00 | Tastenkopf 12 x 3 | Push button | TC 8 | A 1 |
| 18 197 00 | Druckfeder für Kappe | Spring | TC 9 | A 0 |
| 18 196 00 | Kappe | Cap | TC 10 | A 3 |
| 18 246 00 | Tipp-Tastenkopf 24 x 10,5 | Push button | TC 11 | A 5 |
| 18 167 00 | Tastenkopf 24 x 10,5 | Push button | TC 12 | A 4 |
| 18 166 00 | Tastenkopf 16,5 x 10,5 | Push button | TC 13 | A 5 |
| 31 641 00 | Druckfeder | Spring | TC 14 | A 0 |
| 23 925 00 | Stöpsel-Taste | Cap | TC 15 | A 1 |
| 47 155 00 | Cassettenrückwand bedruckt | Rear cover | | B 6 |
| 18 442 00 | NF-Bandtg. 1 x 0,5 250 mm 2 x Chinch | Cable Chinch 1 x | CD-RC | A 9 |
| 18 448 00 | NF-Bandtg. 2 x 0,5 250 mm 2 x Chinch | Cable Chinch 2 x | PAOUT | B 3 |
| 47 110 00 | Frontteil PA 1000 SUPER TEAM | Front panel PA 1000 SUPER TEAM | PA 1 | D 2 |
| 47 340 00 | Frontteil PA 1000 OPEN AIR | Front panel PA 1000 OPEN AIR | PA 1 | D 2 |
| 18 386 00 | Blende bedr. 1000 W PMP SUPER TEAM | Decoration cover SUPER TEAM | PA 2 | A 8 |
| 18 436 00 | Tastenkopf 24 x 15,5 | Push button | PA 3 | A 6 |
| 38 100 00 | Druckfeder D=8 L=14,7 | Spring button | PA 4 | A 0 |
| 23 925 00 | Stöpsel-Taste | Cap | PA 5 | A 1 |
| 18 438 00 | Tastenkopf 24 x 10,5 Speaker 1 | Push button 24 x 10.5 Speaker 1 | PA 6 | A 5 |
| 18 439 00 | Tastenkopf 24 x 10,5 Speaker 2 | Push button 24 x 10.5 Speaker 2 | PA 7 | A 5 |
| 31 057 00 | Druckfeder | Spring | PA 8 | A 1 |
| 18 377 00 | Stöpsel-Taste | Cap | PA 9 | A 1 |
| 23 568 00 | Knopf-Dreh | Rotary knob | PA 10 | A 9 |
| 23 569 00 | Steckachse | Rear panel | PA 11 | A 7 |
| 18 734 00 | Rückwand PA 1000 OPEN AIR | Rear panel PA 1000 OPEN AIR | PA 12 | C 7 |
| 18 380 00 | Rückwand PA 1000 SUPER TEAM | Rear panel PA 1000 SUPER TEAM | PA 12 | C 7 |
| 38 410 00 | Anzeigeinstrument (Power) PA 1000 | Power instrument | PA 20 | C 5 |

Exploded view housing casseiver

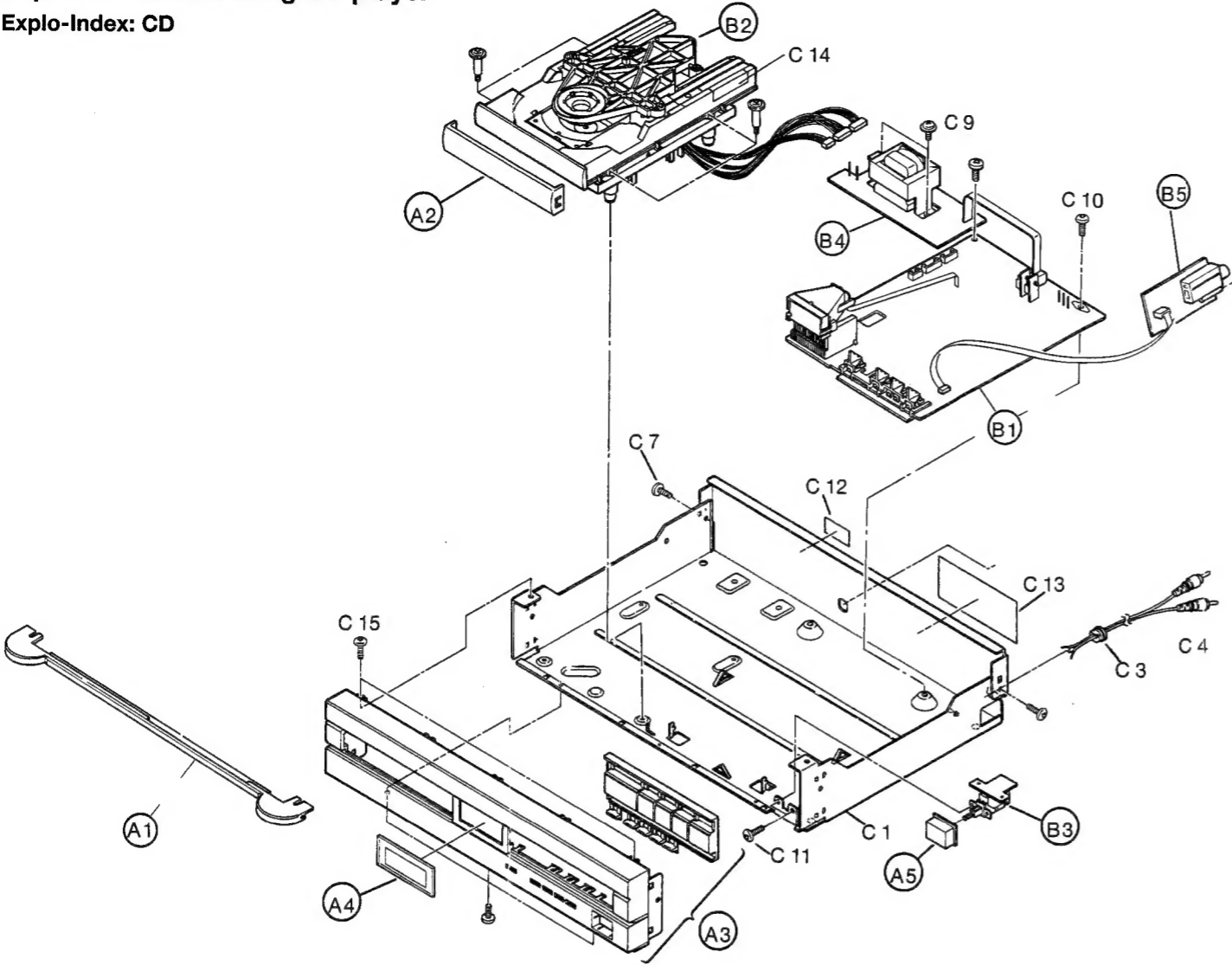
Explo-Index: PA



Explosionsdarstellung Gehäuse CD-Player

Exploded view housing CD player

Explo-Index: CD



Ersatzteilliste CD-Player Gehäuse/Mechanik

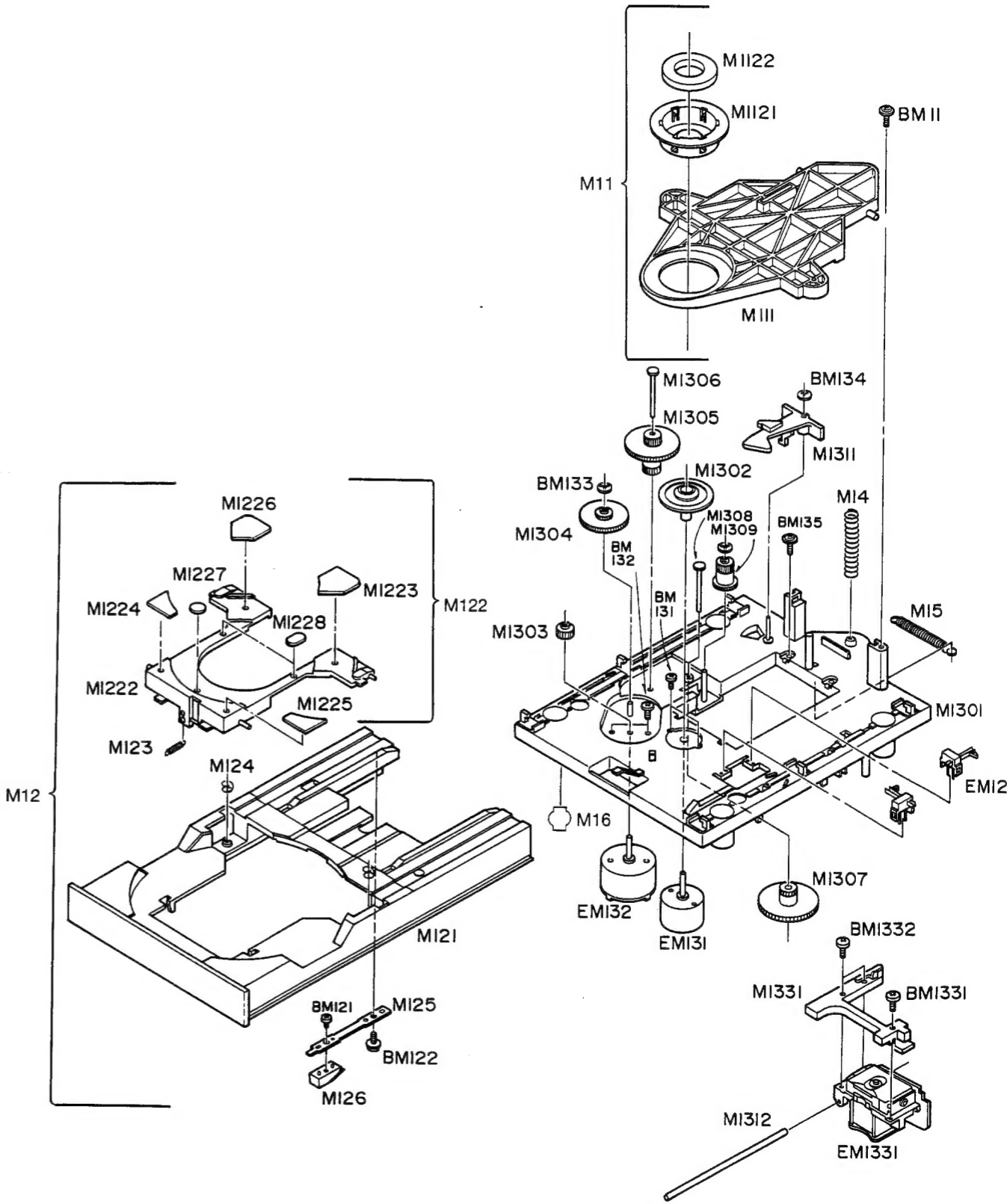
Spare parts list CD player housing/mechanism

| Bestell-Nr./Part. No. | Bezeichnung | Description | Position | Preisgruppe/ Price key |
|-----------------------|--------------------------------|------------------------------|------------|---------------------------|
| 18 385 00 | Fußblende | Foot cover | A 1 | B 5 |
| 48 065 00 | Schlittenblende | Lid plate | A 2 | B 5 |
| 48 064 00 | Frontblende komplett | Front frame assembly | A 3 | D 4 |
| 45 350 00 | Anzeigeblende | LCD cover | A 4 | B 5 |
| 45 347 00 | Knopf Netzschalter | Knob power button | A 5 | A 5 |
| 4591500 | Mechanik kpl. | Mechanism assembly | B 2 | G 6 |
| 45 916 00 | Mikroschalter OPEN/END, INSIDE | Leaf switch OPEN/END, INSIDE | EM 12 | A 5 |
| 45 917 00 | Einspannarm kpl. | Chuck arm assembly | M 11 | C 7 |
| 45 918 00 | Schlitten CD-Platte kpl. | Loading box assembly | M 12 | D 7 |
| 45 919 00 | Single Adapter kpl. | Up down table assembly | M 122 | C 6 |
| 08 325 00 | Feder Schlitten A | Spring table A | M 123 | A 1 |
| 18 197 00 | Feder Schlitten B | Spring table B | M 124 | A 0 |
| 45 920 00 | Motor Disc | Motor spindle | EM 131 | C 1 |
| 45 921 00 | Motor Schlitten, Laser | Motor table, laser | EM 132 | C 1 |
| 45 922 00 | Antriebssteller | Disc table | M 1302 | B 0 |
| 45 923 00 | Motorpulley gezahnt | Motorpulley gear | M 1303 | A 4 |
| 45 924 00 | Zahnrad Schlitten, Laser A | Gear table, laser A | M 1304 | A 5 |
| 45 925 00 | Zahnrad Schlitten, Laser B | Gear table, laser B | M 1305 | A 7 |
| 45 926 00 | Zahnrad Schlitten, Laser C | Gear table, laser C | M 1307 | A 4 |
| 45 927 00 | Zahnrad Laser Zahnschiene | Gear PU rack | M 1309 | A 4 |
| 45 928 00 | Laserabtaster | Laser head | EM 133 | F 3 |
| 45 929 00 | Zahnschiene Lasertransport | PU rack | M 1331 | A 6 |
| 45 930 00 | Feder Einspannarm | Spring chuck arm | M 14 | A 3 |
| 45 931 00 | Feder Mechanik | Spring mechanism | M 15 | A 3 |
| 45 932 00 | Gummifuß Mechanik | Damper mechanism | M 16 | A 2 |

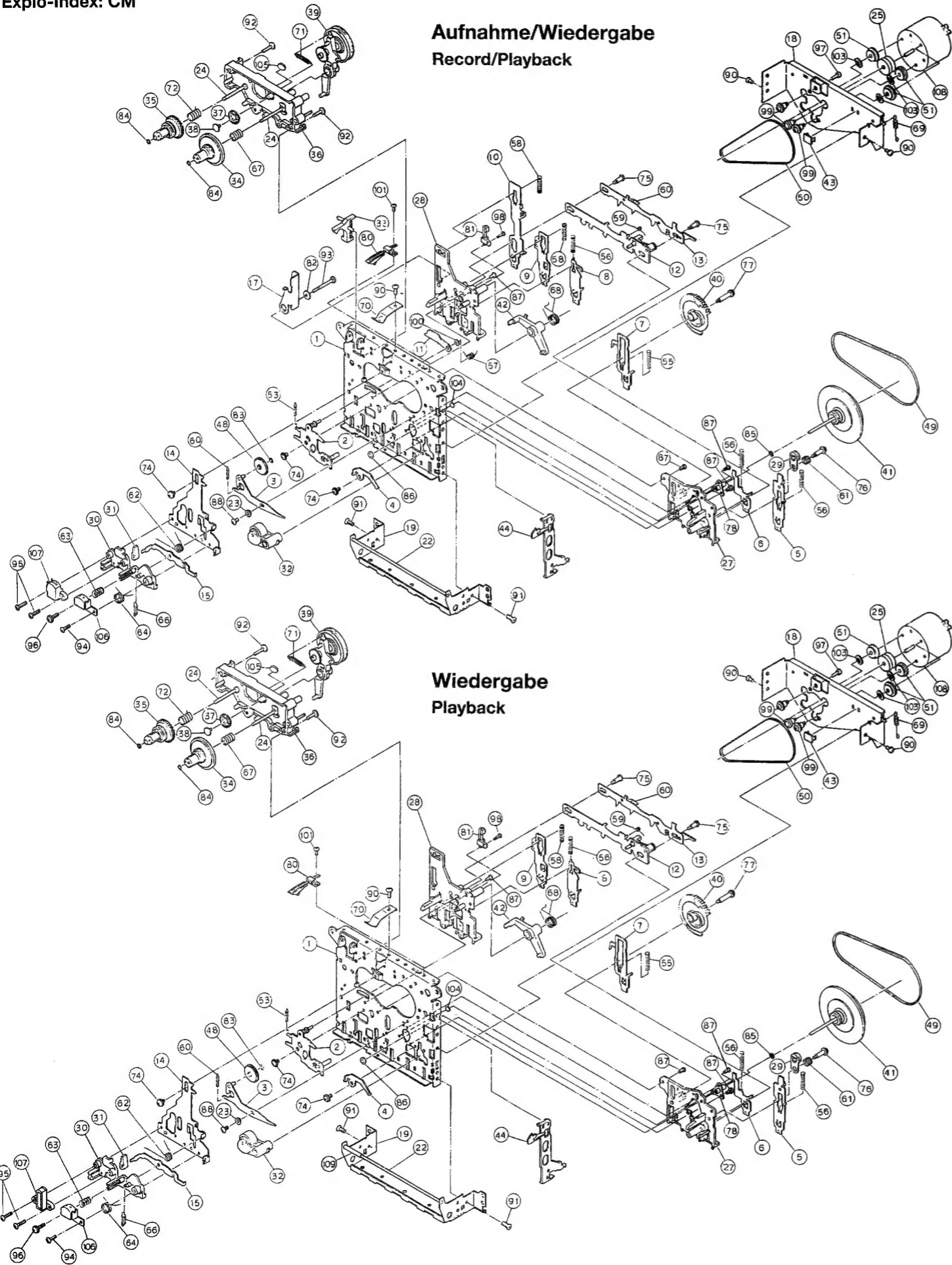
Explosionsdarstellung Mechanik CD-Player

Exploded view mechanism CD player

Explo-Index: CM



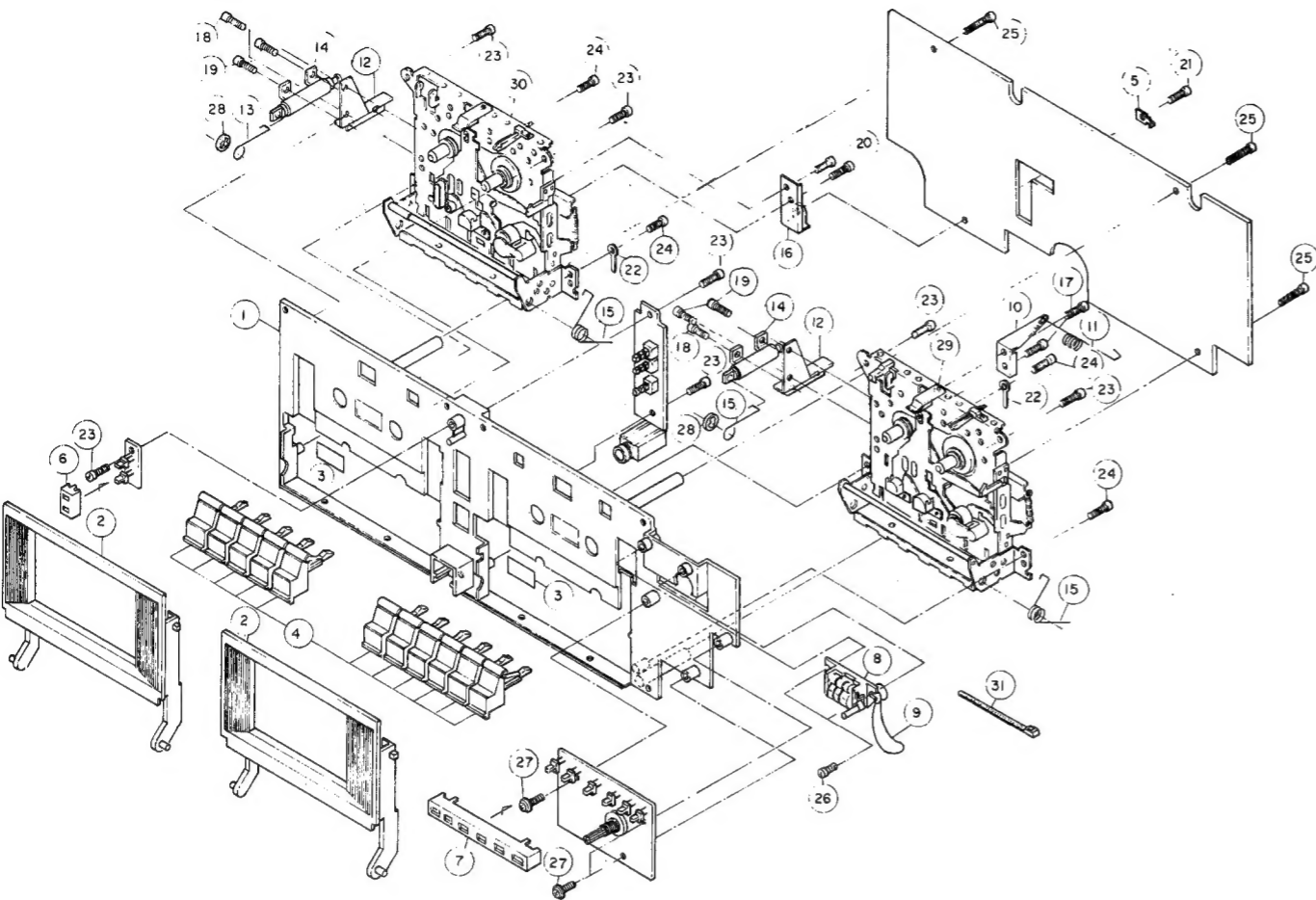
Explosionsdarstellung Mechanik Cassettenrecorder
Exploded view mechanism cassette recorder
Explo-Index: CM



Ersatzteilliste Mechanik Cassettenrecorder
Spare parts list mechanism cassette recorder

| Bestell-Nr./Part. No. | Bezeichnung | Description | Position | Preisgruppe/Price |
|-----------------------|---------------------------------------|-----------------------------|------------|-------------------|
| 34 059 00 | Cassettenmechanik kpl. Aufn./Wiederg. | Cassette mechanism Rec./PB | LBNC 59 FB | E 1 |
| 34 060 00 | Cassettenmechanik kpl. Wiedergabe | Cassette mechanism playback | LBNC 58 FB | E 0 |
| 26 841 00 | Schalthebel | Shift arm | 2 | A 9 |
| 24 403 00 | Zwischenradarm | Idler arm | 3 | A 4 |
| 24 404 00 | Schalthebel Pause | Pause arm | 4 | A 3 |
| 34 043 00 | Schalthebel Pause | Pause lever | 5 | A 3 |
| 34 044 00 | Schalthebel Stop | Stop lever | 6 | A 2 |
| 34 045 00 | Schalthebel Vorlauf | Forward lever | 7 | A 1 |
| 34 046 00 | Schalthebel Rücklauf | Rewind lever | 8 | A 1 |
| 34 047 00 | Schalthebel Play | Play lever | 9 | A 1 |
| 34 048 00 | Schalthebel Record | Record lever | 10 | A 1 |
| 29 826 00 | Auslöserasthebel (A) | Lock cam A | 12 | B 1 |
| 29 827 00 | Auslöserasthebel (B) | Lock cam B | 13 | B 1 |
| 24 190 00 | Abschalthebel | Auto stop arm | 15 | A 4 |
| 34 049 00 | Motorpulley | Motor pulley | 25 | A 3 |
| 24 405 00 | Pauserasthebel | Pause cam | 29 | A 1 |
| 24 406 00 | Kopfträgerplatte | Head base | 30 | A 2 |
| 24 407 00 | Stopfühler | Sensor cap | 31 | A 1 |
| 26 724 00 | Bandandruckrolle | Pinch roller arm | 32 | A 9 |
| 24 409 00 | Aufnahmesperthebel | Record sensor | 33 | A 2 |
| 24 410 00 | Wickelteller rechts | Take up reel | 34 | A 8 |
| 24 411 00 | Wickelteller links | Supply reel | 35 | A 5 |
| 24 413 00 | Zahnrad Vorlauf | Forward gear | 37 | A 1 |
| 24 414 00 | Nietbolzen Zahnrad Vorlauf | Bush forward gear | 38 | A 1 |
| 24 412 00 | Rutschkupplung | Clutch arm | 39 | B 2 |
| 26 845 00 | Zahnrad Start/Stop | Gear start/stop | 40 | A 3 |
| 34 050 00 | Schwungmasse | Flywheel | 41 | B 3 |
| 26 728 00 | Rasthebel | Lock arm | 42 | A 2 |
| 26 847 00 | Schwungmasselager | Capstan spacer | 43 | B 5 |
| 24 420 00 | Hebel Eject | Eject lever | 44 | A 2 |
| 24 423 00 | Zwischenrad | Play idler | 48 | A 4 |
| 24 422 00 | Antriebsriemen B | Drive belt B | 49 | A 7 |
| 24 421 00 | Antriebsriemen A | Drive belt A | 50 | A 6 |
| 24 424 00 | Gummipuffer Motor | Motor cushion | 51 | A 0 |
| 26 849 00 | Feder Schalthebel | Spring shift arm | 53 | A 0 |
| 34 051 00 | Feder Schalthebel Vorlauf | Spring forward lever | 55 | A 1 |
| 34 052 00 | Feder Schalthebel Rewind | Spring rewind lever | 56 | A 1 |
| 24 427 00 | Feder Schalthebel Record | Spring record lever | 57 | A 0 |
| 34 053 00 | Feder Schalthebel Record | Spring record lever | 58 | A 1 |
| 26 851 00 | Feder Auslöserasthebel A | Spring lock cam | 59 | A 0 |
| 26 852 00 | Feder Auslöserasthebel B | Spring lock cam | 60 | A 1 |
| 26 853 00 | Feder Pauserasthebel | Spring pause cam | 61 | A 1 |
| 24 428 00 | Feder Kopfschlitten | Spring head chassis | 62 | A 1 |
| 24 429 00 | Feder A/W-Kopf | Spring rec./playback head | 63 | A 0 |
| 26 854 00 | Feder BA-Rolle | Spring pinch roller | 64 | A 1 |
| 24 432 00 | Zugfeder Kopfschlitten | Spring head chassis return | 66 | A 0 |
| 45 277 00 | Feder Wickelteller rechts | Spring take up reel | 67 | A 1 |
| 26 732 00 | Feder Rasthebel | Spring lock arm | 68 | A 1 |
| 26 733 00 | Feder Hebel Eject | Spring eject lever | 69 | A 0 |
| 24 436 00 | Cassettenandruckfeder | Spring pack | 70 | A 1 |
| 34 054 00 | Feder Rutschkupplung | Spring clutch arm | 71 | A 1 |
| 34 055 00 | Feder Wickelteller links | Spring supply reel | 72 | A 1 |
| 29 703 00 | Schaltkontakt Bandsorte | Leaf switch tape select | 80 SW 2, 3 | A 6 |
| 24 440 00 | Schaltkontakt Motor | Leaf switch motor | 81 | A 4 |
| 26 734 00 | Schaltkontakt play Tape 1 | Leaf switch play tape 1 | 112 | A 6 |
| 24 441 00 | Scheibe Wickelteller | Washer reel | 84 | A 0 |
| 37 778 00 | A/W-Kopf | Rec./PB head | 106 | C 2 |
| 37 779 00 | Wiedergabekopf | Playback head | 106 | B 9 |
| 24 513 00 | Löschkopf | Erase head | 107 | B 9 |
| 29 831 00 | Bandführung | Tape guide | 107 | A 4 |
| 37 780 00 | Motor | Motor | 108 | C 5 |

Explosionsdarstellung Cassettenrecorder
Exploded view cassette recorder
Explo-Index: CA



Ersatzteilliste Cassettenrecorder
Spare parts list cassette recorder

| Bestell-Nr./Part. No. | Bezeichnung | Description | Position | Preisgruppe/Price |
|-----------------------|----------------------------------|-----------------------------|----------|-------------------|
| 34 035 00 | Cassettenfach | Cassette case | C 2 | A 7 |
| 45 276 00 | Knopftaste Klavier | Cassette button | C 4 | A 3 |
| 34 038 00 | Zählwerk | Counter | C 8 | B 3 |
| 34 039 00 | Zählwerkriemen | Counter belt | C 9 | A 2 |
| 34 040 00 | Feder A/W-Schalter | Spring Rec./PB switch | C 11 | A 1 |
| 34 041 00 | Feder Fachdämpfung | Spring damper | C 13 | A 1 |
| 29 003 00 | Fachdämpfung | Damper | C 14 | A 5 |
| 34 042 00 | Feder Cassettenfach Eject | Spring cassette eject | C 15 | A 1 |
| 34 059 00 | Cassettenmechanik Aufn./Wiederg. | Cassette mechanism Rec./PB | C 29 | E 1 |
| 34 060 00 | Cassettenmechanik Wiedergabe | Cassette mechanism Playback | C 30 | E 0 |

Technische Änderungen vorbehalten.
Technical modifications reserved.